

E-Channeling Management System

Project Report



Sri Lanka Institute of Information Technology

IT2080 Information Technology Project

Group ITP_WD_B06_G09

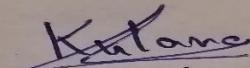
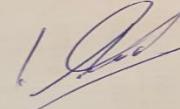
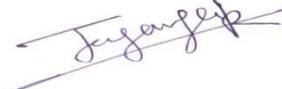
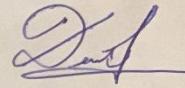
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May 2023

Declaration

This project report is our original work, and the content is not plagiarized from any other resource. References for all the content taken from external resources are correctly cited. To the best of our knowledge, this report does not contain any material published or written by third parties, except as acknowledged in the text.

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Date: 20/05/2023

Abstract

Care-24 is an E-channeling management system that comprehensive online platform designed to automate streamline and the process of scheduling and managing appointments between patients and other healthcare parties.

This system offers a user-friendly interface that allows patients to login, create accounts, browse through a directory of healthcare providers, and select their doctors, select free time slot to take care of their health facility. The system provides real-time availability information, enabling patients to choose a suitable appointment slot based on their convenience.

Mongo DB store all date in the system and updates data real time automatically. In this system we have implemented everything automatically.

Acknowledgement

We would like to express our deepest gratitude and appreciation to all those who have contributed to the successful completion of the e-channeling and laboratory management system project. Without your support, dedication, and expertise, this project would not have been possible.

First and foremost, we extend our heartfelt thanks to our project supervisor for their valuable guidance, continuous support, and insightful suggestions throughout the entire project journey. Their expertise and encouragement have been instrumental in shaping our ideas and ensuring the project's smooth progress.

We are immensely grateful to the lecturers and instructors at SLIIT for providing us with the necessary resources, infrastructure, and financial support to undertake this project. Their vision and commitment to innovation have paved the way for the development of this advanced e-channeling and laboratory management system, benefiting both the medical staff and patients.

In conclusion, we express our heartfelt appreciation to everyone involved in the e-channeling and laboratory management system project. Your collective efforts, expertise, and dedication have contributed to the successful completion of this endeavor, which will undoubtedly improve the efficiency and quality of healthcare services. Thank you for being part of this remarkable journey.

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List of Acronyms and Abbreviations

ER - Entity Relationship

IEEE - Institute of Electrical and Electronics Engineers

UD - Use case Diagram

AD - Activity diagram

UI - User Interface

1. Introduction

1.1. Background

We are developing an E-Channeling Management System for Care 24 E-channeling center located in the central province. The healthcare industry is rapidly evolving, and technology has been a key driver of this change. One of the areas where technology has made a significant impact is in the management of patients and utilization. Traditionally, it maintains the manual system for all work done. This involves management and patients as well. When using a traditional system, the Management process is too complex and it's hard to maintain and reduce the efficiency of this. As well as this process was time-consuming and often resulted in long waiting times for patients and customers.

To address this challenge, Care-24 has developed the E-Channeling Management System, a comprehensive web application that enables scheduling appointments, managing inventory, managing employees, and managing other physical resources. The E-Channeling Management System is designed to reduce the time consumption of each process, reduce waiting times, and improve overall performance. This project's primary goal would be to handle users, patients, doctors and surgeons, staff members, appointments, and payments accurately/ continuously. This system makes it simple for them to manage all their daily tasks without causing them any discomfort. The system also benefits from improving resource utilization. The E-Channeling Management System provides real-time access to their appointment schedules, enabling them to manage their time more efficiently and effectively. With the automated system we are expecting to introduce, the main features of the E-channeling center will be divided into User Management, Inventory Management, Employee Management, Billing and Invoice Management, Compliance and & Feedback Management, Medicine Delivery Management and Test Result Management.

When considering each sector of our system, Appointment scheduling considers several factors such as the availability of the staff or resources, the duration of the appointment, and the type of service required. Inventory Management ensures the maintenance of the stocks and keeping track of information on stocks. Employee Management ensures keeping track of all the information of employees in a centralized location, which is easily accessible to authorized personnel. This module allows the administrator to maintain an up-to-date database of employee records, including their personal information, attendance, and payroll information. The user management function enables the efficient management of users who access the system. There is a Medicine delivery management system, that enables users to order prescription medications online and have them delivered to their home or preferred location. Those are our system's main functionalities.

1.2. Problems and Motivations

Care-24 is a E-Channeling system that developed using MERN (Mongo DB, Express, Reacts.js and Node.js). There are many problems in traditional e-channeling centers and our system has implemented to overcome from those issues.

- Manual Appointment booking – In traditional e-channeling centers all the appointments are booked by manual process such as Calling over the phone or in-person visits. This is very time consuming and less efficient method. Through this system we have implemented an automated booking process by logging to the system with user credentials
- Long waiting time- In health service stations many of places there are waiting queues this is frustrating to the people that engage with these service providers. Throughout this system patients/users can schedule appointments by selecting suit time slot to them.
- Data management and Accessibility – Many places the documentation part for the patients is done by manually. A digital E-channeling system stores patient data in a cloud storage and those details can be accessed by limited people that who have the access to that database.
- Manual Inventory management – Managing inventory manually is not efficient and it is not reliable for every time so developing a digital system makes more efficient inventory processes. All the data are stored in the database and whenever the stuff is deducted or added to the inventory all the details will be updated automatically.
- Manually sending inquiries - In many cases inquiries are send using manual process. User has to handover a handwritten document to respective people. Developing a digital system will be a best solution for this manual process. Using this method user can make inquiries by one click.
- Hand overing a hard copy documents – In many places user must physically go the channeling center and get hard copy of reports but developing a System helps to generate reports automatically through the system and user can download soft copy of those reports.

Some of problems that we saw in E-channeling centers are mentioned above. Because of those problems we have been motivated and referring those problems we have implemented a very user-friendly product.

1.3. Literature Review

'Care24' is a comprehensive software solution that streamlines multiple processes in an 'E-channeling and laboratory management system' concerned with managing appointments, users, employees, samples, inventory, medicine delivery, compliance and feedback management, billing, and invoice management. This review of the literature gives a high-level summary of the literature that has been written about each of these e-channeling and laboratory management system functions, highlighting their importance, advantages, and unique features.

User Management:

A vital part of any system that needs safe access and authorization is user management. User management systems, according to Alshamsi and Alshamsi (2016), allow admins to create, update, and delete user accounts while allocating various roles and permissions. This feature maintains data security, prevents unauthorized access, and helps keep track of user activity. Additionally, it enables user profile modification, making it easier to provide personalized services and enhancing the overall user experience.

Employee Management:

The key to maximizing organizational performance and productivity is effective employee management. Employee administration modules, according to Chuan et al. (2018), offer capabilities like keeping updated personnel records, tracking attendance, managing leaves of absence, evaluating performance, and awarding awards and recognition. These features help to improve job satisfaction, link employee goals with company objectives, and streamline human resource processes.

Appointment Management:

The handling of appointments is essential to our system. The appointment management function, as noted by Fajardo and Guevara (2018), enables clients or users to easily book appointments online and assists service providers in efficiently scheduling appointments based on several factors like availability and clients' needs. Waiting times are reduced, customer or patient satisfaction is increased, and effective patient management is made possible through this function.

Test Result Management:

Our system's Test Result Management method is essential to guaranteeing the efficient handling and tracking of samples during the testing process. Test Result Management systems, according to Hassell et al. (2017), make it easier to create and maintain sample records, track sample status, report test results, and ensure data security. These technologies help ensure that our laboratory procedures are effective, that test results are managed accurately, and that quality standards are followed.

Inventory Management:

To guarantee the availability of critical medical supplies while avoiding costs and waste, inventory management is important in healthcare organizations. Inventory management systems support managing stock levels, producing reports, handling orders, and implementing effective inventory control procedures, as explained by Ali and Naqvi (2018). These features improve supply chain effectiveness, avoid stockouts, and reduce costs associated with inventory.

Medicine Delivery Management:

Patients can easily order prescription prescriptions online and have them delivered to their selected location with the help of the medicine delivery management section. This feature, according to Basha and Ganesan (2017), facilitates order processing, tracking, inventory management, prescription verification, and delivery assignment. They improve accessibility and increase patient comfort while streamlining the medicine distribution procedure.

Compliance and Feedback Management:

Another essential aspect of our "care24" is compliance and feedback management, which ensures obedience to rules and continuously improves system performance. Compliance management involves setting in place security measures, updating policies, and protecting data privacy, as stated by Oliveira et al. (2017). Users can submit feedback, monitor solve issues, and use feedback for system improvements thanks to feedback management, resulting in user/patient satisfaction and confidence.

Billing and Invoice Management:

The billing process, payment tracking, and financial record-keeping are all facilitated by the invoice management and billing functions. 'Daradkeh and Al-Kabi (2019)' state that this function automates the creation of invoices, make online payments possible, and give financial administrators the ability to monitor accounts, produce reports, and guarantee timely payment collection. They promote financial transparency, reduce income leakage, and bill accuracy.

Conclusion:

Our E-Channeling and Laboratory Management System, "Care24," offers a full range of functions that improve user experience, simplify operations, and encourage effectiveness in every aspect of healthcare management. This system guarantees optimum resource utilization, data security, regulatory compliance, and general productivity by incorporating user management, employee management, appointment management, Test Result Management, inventory management, medicine delivery management, compliance and feedback management, and billing and invoice management. By putting in place such a system, healthcare companies are better equipped to deliver high-quality services, boost patient happiness, and promote operational success in the digital age.

1.4. Aim and Objectives

Depending on the environment and objectives of the system implementation, the goals and objectives of an e-channeling system may change. However, the following are some e-channeling systems' typical goals and objectives:

- Improved accessibility:
The technology intends to give patients simple access to healthcare services by letting them easily book appointments with doctors or experts via an internet platform from any location at any time.
- Efficiency and timesaving:
The goal is to make the appointment booking process more efficient, requiring less manual paperwork and shorter wait times. Both consumers and healthcare professionals can save time by simply searching for available doctors, selecting a convenient time window, and scheduling appointments online.
- Enhanced patient experience:
The system's user-friendly interface, customizable features, and practical communication channels are all designed to enhance the entire patient experience. Patients will have a more positive experience because of being able to quickly manage their appointments, get reminders, access medical records, and connect with healthcare professionals.
- Optimal resource utilization:
The system aims to optimize the utilization of healthcare resources, including doctors' schedules and facility capacities. By efficiently managing appointments, the system helps to reduce idle time for doctors and ensure efficient utilization of available resources.
- Reduction in no-shows and appointment cancellations:
By using appointment reminders and giving patients the option to book or cancel appointments online, one goal is to reduce the number of missed appointments or last-minute cancellations. This facilitates scheduling and lessens the losses incurred by healthcare providers because of no-show patients.
- Data collection and analysis:
The system may be designed to gather and examine information about doctor availability, patient demographics, patient appointments, and other pertinent details. Insights from this data can help healthcare professionals enhance resource allocation, optimize their services, and make wise decisions.

- Integration with other healthcare systems:

Integrating the e-channeling system with other medical software, such as electronic health records (EHR) or billing software, may be one of the goals. The coordination and information flow between various patient care components are made possible by this integration.

- Cost savings:

By automating appointment scheduling processes and reducing administrative overhead, the system aims to achieve cost savings for healthcare providers and improve operational efficiency.

1.5. Solution Overview

The Care-24, E-Channeling Management System is a comprehensive web application developed using the MERN (MongoDB, Express.js, React.js, Node.js) stack. It aims to provide a seamless and efficient platform for individuals to manage their healthcare needs conveniently and effectively. By leveraging modern technologies and intuitive user interfaces, Care-24 offers a range of features and functionalities to enhance the overall healthcare experience.

- Care-24 allows users to book appointments with doctors and schedule lab tests with ease. The intuitive user interface provides a streamlined process for selecting preferred doctors and specifying appointment timings.
- The application includes a Medicine Delivery service that allows users to order prescribed medications conveniently from the comfort of their homes. By processing medicine delivery requests carefully and updating orders' statuses at every step of the procedure, Care-24 ensures the timely delivery of medications while maintaining the highest standards of quality. For every medicine delivery request from Patients, the Pharmacist and Delivery Persons can take the necessary actions and manage their tasks from the relevant dashboards.
- Users can simply sign up as a normal users/patient. The User Management functionality enables admins to create personalized profiles and manage current user-related activities. Also, the admin can change the user roles of existing users in specific scenarios. And users can access their profiles to update personal details.
- Care-24 offers robust Employee Management capabilities to facilitate the efficient operation of healthcare facilities. It provides features for managing employee profiles, adding payrolls, managing leavings, and tracking attendance. These functionalities optimize staff allocation and enhance overall workforce management.
- To streamline laboratory processes, the system includes Test Result Management functionality. It enables the healthcare provider to record test results accurately and maintain a comprehensive database for future reference. This ensures a smooth workflow, and the report-generating feature will be very useful to review test results when needed.
- Care-24 incorporates Inventory Management features that empower healthcare facilities to manage their medical supplies effectively. The system enables monitoring of stock levels, reordering and adding/updating stocks, and tracking of expiry dates. These capabilities minimize wastage, ensure the availability of essential supplies, and improve overall inventory control.
- In adherence to regulatory requirements, Care-24 integrates Compliance and Feedback Management functionalities. The system enables the management to maintain compliance with

industry standards. Additionally, users can provide feedback on their experiences, allowing healthcare facilities to continually enhance their services.

- The application includes Billing and Invoice Management features to streamline the financial aspects of healthcare services. It provides automated billing generation, and accurate invoicing.

1.6. Methodology

Our team's clear objective was to create a fully functional system for the E-channeling service including laboratory testing as well. And to do so, we must first acquire all the requirements. And our desired ultimate product was to create a system that makes everything simple and reliable for users in the E-channeling service. So, first, we started the stage of requirement collecting and analysis, which assists us in determining the scope, difficulties, and clear answers that we should provide. We interact with the E-channeling service owner to obtain requirements. We were able to understand the current position of the E-channeling after multiple chats. And, for the most part, everything was done written, with files and papers. For the past several years, these manual operations have caused numerous challenges and difficulties for the E-channeling service. Information loss, a lack of security, the inability to easily locate data, a large amount of physical space required, data unavailability, and plenty of other issues have been found.

As requirements, we needed to collect consultant's details, patient details, and system admin information for the system. Also, another requirement was to gather patients' feedback and question and answer. Also, the owner asked us to add an employee management function and medicine delivery function for their patient. For the function called inventory control as well. Another requirement was for doctors and patients to know about doctors' schedules. We added a function to that as well. We decided to add a function for Billing and Invoice management function. And we built up it because of method for all.

Following successful interviews with the owner, our group was able to collect all necessary and non-necessary information. There was not any current system running in the E-channeling service. We needed to come up with new answers and ideas. And there were occasions when we had to look for similar solutions available on the internet and adapt them to match our needs. And we were able to complete this step smoothly and without any difficulties and solutions. As a result of our analysis, we were able to split all the requirements into functional and non-functional requirements.

1.7. The Structure of the report

The following part of the report contains Requirement and Stakeholder analysis, Design and Development, Testing, Evaluation and Conclusion and finally References.

In Design and Development section contains use cases, workflows, databases, and development aspects.

All the test cases and results are included in the Testing section.

Design and Development section and Testing section has been divided into following sub-sections as follows.

1. User Management
2. Employee Management
3. Appointment Management
4. Test Result Management
5. Inventory Management
6. Medicine Delivery Management
7. Compliance and Feedback Management
8. Billing and Invoice Management

Evaluation and Conclusion section evaluates with the test results and concludes how the objectives have met and aim is achieved.

1.8. A clickable link to Git repo

https://github.com/SLIITITP/y2_s2_wd_it_01-itp_wd_b06_g09

2. Requirements

2.1. Stakeholder Analysis

I. Identify Stakeholders

- Admin
- Patient / User
- Doctor
- Financial Manager
- Pharmacist
- Receptionist
- Inventory Officer
- Lab Analyst
- Delivery Person

II. Prioritize Stakeholders

- Admin
- Patient / User
- Receptionist
- Doctor
- Pharmacist
- Lab Analyst
- Inventory Officer
- Financial Manager
- Delivery Person

2.2. Requirements Analysis

I. Functional Requirements

- **Admin**
 - Logging in to the system.
 - Create an Account for other users.
 - Delete user details and account.
 - Update user details and account.
 - View user in system.
- **Pharmacist**
 - Access Prescriptions Details
 - Approve a Prescription or Medicine Delivery Request
 - Calculate Bill
 - Handle Pharmaceutical Inventory Levels
 - View Order Status
- **Patient / User**
 - Uploading a Prescription or Entering a Medicine List
 - Order Medicines
 - View Order Status
 - Contact Pharmacist
 - Cancel a Medicine Delivery Process
- **Delivery Person**
 - View Deliver Requests
 - Contact Pharmacist
 - Update Delivery Status
- **Staff**
 - The system should allow employees to view their personal information and update it as necessary.
 - The system should allow employees to view their work schedules and request time off.
 - The system should allow employees to view their performance and progress.
- **Employee Manager**
 - Manage payroll.
 - Managing employee.
 - Manage leave.
 - Generate salary report.

- **Financial Manager**
 - View and track the organization's financial transactions, including income and expenses.
 - Generate financial reports, such as balance sheets, income statements, and cash flow statements, to evaluate the financial performance of the organization.
 - Set and manage budgets for different departments and projects and monitor actual spending against those budgets.
 - Manage payroll and benefits for employees, including processing payments and calculating taxes.
 - Monitor and manage cash flow, ensuring that there is enough liquidity to cover expenses and invest in growth opportunities.
- **Receptionists**
 - Compliance handling
 - Reporting Payment issues
 - Maintain social media pages.
 - Communicate with Customers
 - Send feedback reports to the Manager.
 - Do surveys.
- **Lab Analysis**
 - Test management
 - Test ordering and tracking
 - Sample tracking
 - Result entry and reporting
 - Quality control
 - Communication
 - Access control
- **Receptionists**
 - Appointment scheduling
 - Reminders and Notifications
 - Appointment Cancellation
 - Reporting and Analytics
 - Managing Multiple Appointments
- **Inventory Manager**
 - Reordering (Once the stock runs out)
 - Maintain the stock level (keep in update about the stocks)
 - Distributing and analytics (Distributing stocks to accurate department)
 - Forecasting (Forecast the stocks level)
 - Reporting (Generate the reports for ordering, dispatch, and current level)

II. Non-Functional Requirements

- **Admin**
 - Availability
 - Data quality
 - Accessibility
 - Accuracy
 - Maintainability
- **Pharmacist**
 - Availability
 - Maintainability
 - Performance
 - Scalability
- **Patient / User**
 - Reliability
 - Ease of use
 - Confidentiality
 - Accessibility
 - Availability
 - Portability
- **Delivery Person**
 - Ease of use
 - Availability
 - Portability
 - Scalability
- **Staff Member**
 - Ease of use
 - Availability
 - Accuracy
- **Employee Manager**
 - Performance
 - Maintainability
 - Accessibility
 - Data quality
- **Financial Manager**
 - Scalability
 - Security and Access Control
 - Support and Maintenance
 - Reliability

- **Receptionists**
 - Disaster
 - Usability
 - Performance
 - Data integrity
 - Security
- **Lab Analyst**
 - Reliability
 - Security
 - Usability
 - Performance
 - Maintainability
 - Compliance
- **Receptionists**
 - Reliability
 - Performance
 - Accessibility
 - Compatibility
 - Maintainability
- **Inventory Manager**
 - Availability
 - Security
 - Capacity
 - Manageability
 - Scalability

2.3. Requirements Modeling

I. Identify actors.

- Admin

First admin login to the system using his login credential. After successful login, the system displays the admin tool page to the admin. Then the admin can add any type of user to the system. Also, the admin can view, remove, or modify any users in the system. Admin can generate a report about users in the system. This report includes the username, type, account created date, and other user details.

- Pharmacist

As a Pharmacist, I want to be able to receive medication orders through the web application, so that I can verify prescription details and prepare the medication for delivery. I also want to be able to add the cost and update the process status, so that patients can track the status of their orders.

- Patient / User

As a patient, I want to be able to order prescription medication online and have it delivered to my preferred location, so that I can receive the medication without having to visit a pharmacy in person. I also want to be able to track the status of my order, so that I know when to expect delivery. Additionally, I want to be able to cancel an order as well.

- Delivery Person

As a delivery person, I want to be able to see medication orders and delivery details through the web application, so that I can plan my route and ensure timely delivery. I also want to be able to update the delivery status, so that patients can track the delivery status of their orders.

- Staff Member

As a staff member, I want to be able to access and manage my own employee information in the system, so that I can view my personal data, manage my benefits and leave, and track my own attendance and performance. I need to be able to easily update my personal information, view my benefits such as leave, insurance, and retirement plans, and submit requests for time off. Additionally, I need to be able to view my attendance records and performance reports, so I can track my progress and identify areas for improvement.

- Employee Manager

As an administrator in the system, I want to be able to efficiently manage employee information in the system, so that I can keep accurate records of employee data, track employee progress, and manage employee benefits and compensation effectively. I need to be able to easily add, update, and delete employee information, track employee attendance and performance, and manage employee benefits such as leave, insurance, and retirement plans. Additionally, I need to be able to generate reports on employee data, such as attendance records, performance reports, and compensation reports. With these features, I can ensure that the e-channeling team is well-managed and that employees are well-supported, leading to increased productivity and job satisfaction.

- Financial Manager

As a financial manager, I want to be able to access and analyze financial data to make informed decisions and manage the financial health of my organization. Overall, the system should provide me with the tools and information I need to manage the financial resources of the organization effectively and efficiently, and to ensure its long-term financial health.

- Lab Analyst

As a Lab Analyst in an E-Channeling System, I have responsible for managing the tests requested by healthcare providers, scheduling tests, managing the workflow of the lab, reviewing, and validating test results, reporting results to healthcare providers, managing quality control processes, managing communication with healthcare providers, generating reports, and analyzing data, and managing patient data security. I must ensure the efficient and accurate operation of the laboratory while maintaining compliance with all relevant regulations and guidelines.

- Customer Service Representative

A CSR will act as a liaison, provide product/services information, answer questions, and resolve any emerging problems that our customer accounts might face with accuracy and efficiency. CSRs are genuinely excited to help customers. They're patient, empathetic, and passionately communicative. They love to talk and understand the value of good communication skills. Customer service representatives can put themselves in their customers' shoes and advocate for them when necessary. Customer feedback is priceless, and these CSRs can gather that for you. Problem-solving also comes naturally to customer care specialists.

- Inventory Manager

As an Inventory Officer, I want to be able to manage the inventory in an efficient manner so that I can ensure that there are no stockouts and no excess stock. My job role is to manage, receive and dispatch goods, and track and maintain stocks levels and inventory. Once the stock limit is out, I can generate orders and send details to the billing and payments team to confirm the order. I must generate all the stocks reports every weekend and send them to the responsible persons.

- Receptionist

As a receptionist, I must schedule new appointments as per customer requests. Once I schedule an appointment, for several reasons, I must delete, edit, or update those scheduled appointments. As a receptionist, it is my responsibility to generate all the reports regarding appointments. For the convenience, I want to generate every appointment report after scheduling.

II. Define Use cases.

Use Case Name	Add and manage users	
Actor(s)	Admin (Administrator)	
Goal	Add the new staff members and users into system	
Overview	Admin add new user & staff members to the system and delete, view & modify all user details	
Pre-Condition	Admin must login to the system	
Post-Condition	Add and give permission new user	
Basic Path	Step	
	1	Go to admin login page in the system
	2	Enter login details
	3	Display the administrator tool page
	4	Administrator select add new staff / user option
	5	Enter new staff / user details into the system
	6	System gets new staff / user details
	7	System updates new staff / user details
	8	Give the relevant permission to new staff / user
	9	Send login details to the new staff / user
Alternative Path	Step	
	2A	Check and verified administrator login details are in the system
	2B	If not, system notify invalid administrator login

	5A	System check password and username are in the relevant format
	5B	If not, notify admin to password and username not in acceptable format
	5C	System checks username and password already in the system
	5E	If it is already in system, notify admin to this user / staff member already in system
NFRs	Availability, Data quality, Accessibility, Accuracy, Maintainability	
TRs	User Interface (React JS), Database (Mongo DB), Backend Sever (Node JS), Server (Express), Version Control System (Git Hub), Code IDE (Visual Studio Code Editor)	

Table 2.3.1 Use Case Add and manage user by Admin.

Use Case	Manage Pharmaceutical Inventory										
Actor	Pharmacist										
Goal	Enable the pharmacist to manage the pharmaceutical inventory of the system.										
Overview	The pharmacist manages the pharmacy's inventory, adding new items as needed and updating the quantities and prices of existing items.										
Pre-conditions	<ul style="list-style-type: none"> The pharmacist must be logged in to the online pharmacy system and have appropriate permissions to manage the pharmaceutical inventory. 										
Post-conditions	<ul style="list-style-type: none"> The pharmaceutical inventory is updated according to the pharmacist's changes. 										
Basic Path	<table border="1"> <thead> <tr> <th>Step</th><th>Action</th></tr> </thead> <tbody> <tr> <td>1</td><td>The pharmacist selects the "Manage Inventory" option from the pharmacist's dashboard.</td></tr> <tr> <td>2</td><td>The system displays the current pharmaceutical inventory.</td></tr> <tr> <td>3</td><td>The pharmacist can add new medicines or update the quantity or prices of existing medicines in the inventory.</td></tr> <tr> <td>4</td><td>The system updates the inventory and displays the new inventory status.</td></tr> </tbody> </table>	Step	Action	1	The pharmacist selects the "Manage Inventory" option from the pharmacist's dashboard.	2	The system displays the current pharmaceutical inventory.	3	The pharmacist can add new medicines or update the quantity or prices of existing medicines in the inventory.	4	The system updates the inventory and displays the new inventory status.
Step	Action										
1	The pharmacist selects the "Manage Inventory" option from the pharmacist's dashboard.										
2	The system displays the current pharmaceutical inventory.										
3	The pharmacist can add new medicines or update the quantity or prices of existing medicines in the inventory.										
4	The system updates the inventory and displays the new inventory status.										
Alternative Paths											
NFRs	<ul style="list-style-type: none"> Availability Maintainability Performance Scalability 										
TRs	<ul style="list-style-type: none"> Database (MongoDB) Server (Express) User Interface (ReactJS) Backend Server (NodeJS) 										

	• Software (VS Code)
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Table 2.3.2 Use Case Manage Pharmaceutical Inventory by Pharmacist

Use Case	Approve Prescriptions & Medicine Delivery Requests
Actor	Pharmacist
Goal	To enable the pharmacist to access prescription details, review and approve the prescription details and medicine delivery requests made by the patients.
Overview	The pharmacist reviews patient prescriptions and approves them if they meet the required criteria. They approve medicine delivery requests after verifying the prescription details and the availability of the medicine.
Pre-conditions	<ul style="list-style-type: none"> • The pharmacist must be logged in to the system. • The prescription details and medicine delivery requests must be available in the system.
Post-conditions	<ul style="list-style-type: none"> • The prescription request is either approved or rejected by the pharmacist, and the patient is notified of the status. • The approved requests will be processed further for medicine delivery.
Basic Path	<ol style="list-style-type: none"> 1. The pharmacist views the list of pending prescription details and medicine delivery requests. 2. The pharmacist selects a request to review and approves or rejects the request. 3. The system sends a notification to the patient with the status of their prescription request.
Alternative Paths	
NFRs	<ul style="list-style-type: none"> • Availability • Maintainability • Performance • Scalability • Security
TRs	<ul style="list-style-type: none"> • Database (MongoDB) • Server (Express) • User Interface (ReactJS)

	<ul style="list-style-type: none">• Backend Server (NodeJS)• Software (VS Code)
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Table 2.3.3 Use Case Approve Prescriptions & Medicine Delivery Requests by Pharmacist

Use Case	Calculate Bill
Actor	Pharmacist
Goal	To calculate the bill for the medicines and the delivery charges and generate a receipt for the patient.
Overview	The pharmacist calculates the bill for a patient's medicine order, including the cost of medicine, delivery fees, and any applicable taxes.
Pre-conditions	<ul style="list-style-type: none"> • The prescription details and medicine delivery requests must be available in the system. • The pharmacist must be logged in to the system.
Post-conditions	<ul style="list-style-type: none"> • The bill will be generated for the patient. • The medicines will be deducted from the inventory.
Basic Path	<ol style="list-style-type: none"> 1. The pharmacist views the prescription details and medicine delivery requests. 2. The pharmacist calculates the cost of the medicines and the delivery charges. 3. The pharmacist generates a receipt for the patient.
Alternative Paths	
NFRs	<ul style="list-style-type: none"> • Availability • Maintainability • Performance • Scalability • Security
TRs	<ul style="list-style-type: none"> • Database (MongoDB) • Server (Express) • User Interface (ReactJS) • Backend Server (NodeJS) • Software (VS Code)

Table 2.3.4 Use Case Calculate Bill by Pharmacist

Use Case	Assign a Delivery Person to an Order
Actor	Pharmacist
Goal	To assign a delivery person to a medicine delivery order.
Overview	The pharmacist assigns a delivery person to a medicine order based on their availability and workload.
Pre-conditions	<ul style="list-style-type: none"> The pharmacist must be logged in to the system and authorized to assign a delivery person. The medicine delivery order must be approved by the pharmacist.
Post-conditions	<ul style="list-style-type: none"> The delivery person will be assigned to the order.
Basic Path	<ol style="list-style-type: none"> The pharmacist views the list of approved medicine delivery orders. The pharmacist selects an order to assign a delivery person. The pharmacist assigns a delivery person to the order.
Alternative Paths	3a. If the assigned delivery person is not available, the pharmacist can reassign the delivery person.
NFRs	<ul style="list-style-type: none"> Availability Maintainability Accessibility Performance Scalability
TRs	<ul style="list-style-type: none"> Database (MongoDB) Server (Express) User Interface (ReactJS) Backend Server (NodeJS) Software (VS Code)

Table 2.3.5 Use Case Assign a Delivery Person to an Order by Pharmacist

Use Case	View Delivery Requests
Actor	Delivery Person
Goal	Plan the Delivery.
Overview	The delivery person can view all pending delivery requests in the system.
Pre-conditions	<ul style="list-style-type: none"> • The Delivery Person is logged into the system. • There are pending delivery requests assigned to the Delivery Person.
Post-conditions	<ul style="list-style-type: none"> • The Delivery Person can view the details of the selected delivery request.
Basic Path	<ol style="list-style-type: none"> 1. The Delivery Person accesses the system and navigates to the delivery requests section. 2. The system displays a list of pending delivery requests assigned to the Delivery Person. 3. The Delivery Person selects a delivery request to view. 4. The system displays the details of the selected delivery request, including the patient's information, delivery address, and medication details.
Alternative Paths	3a. If there are no pending delivery requests assigned to the Delivery Person, the system displays a message indicating that there are no requests to view.
NFRs	<ul style="list-style-type: none"> • Ease of use • Availability • Portability • Scalability • Accessibility
TRs	<ul style="list-style-type: none"> • Database (MongoDB) • Server (Express) • User Interface (ReactJS) • Backend Server (NodeJS) • Software (VS Code)

Table 2.3.6 Use Case View Delivery Requests by Delivery Person

Use Case	Update Delivery Status
Actor	Delivery Person
Goal	
Overview	The delivery person can update the status of the delivery for each order. They can mark it as "Delivered" once they have successfully handed over the medicine to the patient. The system then updates the order status accordingly.
Pre-conditions	<ul style="list-style-type: none"> • The Delivery Person is logged into the system. • There are pending delivery requests assigned to the Delivery Person. • The Delivery Person has viewed the details of the selected delivery request.
Post-conditions	<ul style="list-style-type: none"> • The Delivery Person has updated the delivery status of the request. • The Patient and the Pharmacist are notified of the updated status.
Basic Path	<ol style="list-style-type: none"> 1. The Delivery Person accesses the system and navigates to the delivery requests section. 2. The system displays a list of pending delivery requests assigned to the Delivery Person. 3. The Delivery Person selects a delivery request to update the delivery status. 4. The Delivery Person updates the status of the delivery request (e.g., delivered, delayed, cancelled). 5. The Delivery Person enters additional notes or comments related to the delivery request. 6. The Delivery Person submits the updated delivery status to the system. 7. The system updates the delivery status of the request and inform the Patient.
Alternative Paths	
NFRs	<ul style="list-style-type: none"> • Ease of use • Availability • Portability

	<ul style="list-style-type: none"> • Scalability • Accessibility
Technical Requirements	<ul style="list-style-type: none"> • Database (MongoDB) • Server (Express) • User Interface (ReactJS) • Backend Server (NodeJS) • Software (VS Code)

Table 2.3.7 Use Case Update Delivery Status by Delivery Person

Use Case	Place Medication Order
Actor	Patient
Goal	
Overview	The patient initiates the process of placing a medicine order by providing the required medicine, and necessary details such as delivery address. The pharmacist reviews the order and confirms its validity before approving it.
Pre-conditions	<ul style="list-style-type: none"> • The patient has a prescription for medication. • The patient is logged in to the web application.
Post-conditions	<ul style="list-style-type: none"> • The medication order is submitted for processing.
Basic Path	<ol style="list-style-type: none"> 1. The Patient searches for the medication they need and adds it to their cart. 2. The Patient enters their insurance and payment information. 3. The Patient confirms the medication order and submits it for processing. 4. The Patient receives a confirmation of their medication order.
Alternative Paths	
Non-Functional Requirements	<ul style="list-style-type: none"> • Reliability • Ease of use • Confidentiality • Accessibility • Availability • Portability
Technical Requirements	<ul style="list-style-type: none"> • Database (MongoDB) • Server (Express) • User Interface (ReactJS) • Backend Server (NodeJS) • Software (VS Code)

Table 2.3.8 Use Case Place Medication Order by Patient

Use Case	Request for a Medicine Delivery
Actor	Patient
Goal	The patient can request and order medicine delivery through the system.
Overview	The patient initiates the process of placing a medicine order by providing the required medicine, and necessary details such as delivery address. The pharmacist reviews the order and confirms its validity before approving it.
Pre-conditions	<ul style="list-style-type: none"> • The patient must be registered and logged into the system. • The patient must have a valid prescription for the requested medicine.
Post-conditions	<ul style="list-style-type: none"> • The delivery request is generated and assigned to the Pharmacist for review & approval.
Basic Path	<ol style="list-style-type: none"> 1. The patient selects the option to request/order a medicine delivery. 2. The patient uploads a prescription or enter a list of medicine that needs to be delivered. 3. The patient enters the required information such as the delivery address and payment details. 4. The system generates a delivery request for pharmacist.
Alternative Paths	If the requested medicine is not available, the system informs the patient and provides suggestions for alternatives.
Non-Functional Requirements	<ul style="list-style-type: none"> • Reliability • Ease of use • Confidentiality • Accessibility • Availability • Portability
Technical Requirements	<ul style="list-style-type: none"> • Database (MongoDB) • Server (Express) • User Interface (ReactJS) • Backend Server (NodeJS)

	<ul style="list-style-type: none">• Software (VS Code)
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Table 2.3.9 Use Case Request for a Medicine Delivery by Patient

Use Case	View Order Status
Actor	Patient
Goal	The patient can view the status of their medicine delivery order.
Overview	The patient can check the status of their medicine order at any time. The system displays the status of the order, such as "Pending", "Approved", "Delivered", etc.
Pre-conditions	<ul style="list-style-type: none"> • The patient must be registered and logged into the system. • The patient must have an active medicine delivery order.
Post-conditions	The patient can view the status of their medicine delivery order.
Basic Path	<ol style="list-style-type: none"> 1. The patient selects the option to view their order status. 2. The system displays the status of the medicine delivery order, such as "processing", "dispatched", or "delivered".
Alternative Paths	
Non-Functional Requirements	<ul style="list-style-type: none"> • Reliability • Ease of use • Confidentiality • Accessibility • Availability • Portability
Technical Requirements	<ul style="list-style-type: none"> • Database (MongoDB) • Server (Express) • User Interface (ReactJS) • Backend Server (NodeJS) • Software (VS Code)

Table 2.3.10 Use Case View Order Status by Patient

Use Case	Contact Pharmacist
Actor	Patient
Goal	The patient can contact the pharmacist for any inquiries or issues related to their medicine delivery.
Overview	The patient can contact the pharmacist if they have any questions or concerns about their medication or the delivery process.
Pre-conditions	<ul style="list-style-type: none"> • The patient must be registered and logged into the system. • The patient must have an active medicine delivery order.
Post-conditions	<ul style="list-style-type: none"> • The patient can communicate with the pharmacist regarding any inquiries or issues related to their medicine delivery.
Basic Path	<ol style="list-style-type: none"> 1. The patient selects the option to contact the pharmacist. 2. The patient enters their inquiry or issue in a message form. 3. The system sends the message to the pharmacist. 4. The pharmacist responds to the patient's message.
Alternative Paths	
Non-Functional Requirements	<ul style="list-style-type: none"> • Reliability • Ease of use • Confidentiality • Accessibility • Portability
Technical Requirements	<ul style="list-style-type: none"> • Database (MongoDB) • Server (Express) • User Interface (ReactJS) • Backend Server (NodeJS) • Software (VS Code)

Table 2.3.11 Use Case Contact Pharmacist by Patient

Use Case	Cancel a Medicine Delivery Order
Actor	Patient
Goal	To cancel an existing medicine delivery order placed by the patient.
Overview	The patient can cancel a medicine order before it is delivered. The system removes the order from the delivery schedule and initiates the refund process, if applicable.
Pre-conditions	<ul style="list-style-type: none"> • The patient must be registered and logged into the system. • The patient must have an active medicine delivery order. • The delivery person has not yet been dispatched to deliver the order.
Post-conditions	<ul style="list-style-type: none"> • The medicine delivery order is cancelled, and the delivery status is updated to "Cancelled". • The pharmacist and the delivery person are notified about the cancellation.
Basic Path	<ol style="list-style-type: none"> 1. The patient logs in to the web application. 2. The patient navigates to the "Order Status" page. 3. The patient selects the order that they want to cancel. 4. The patient clicks on the "Cancel Order" button. 5. The web application prompts the patient to confirm the cancellation. 6. The patient confirms the cancellation. 7. The web application cancels the order and updates the delivery status to "Cancelled". 8. The web application notifies the pharmacist and the delivery person about the cancellation.
Alternative Paths	5a. If the order has already been dispatched to the delivery person, the patient will not be able to cancel the order and will be informed that the cancellation is not possible.
NFRs	<ul style="list-style-type: none"> • Reliability • Ease of use • Confidentiality • Accessibility • Availability • Portability

TRs	<ul style="list-style-type: none">• Database (MongoDB)• Server (Express)• User Interface (ReactJS)• Backend Server (NodeJS)• Software (VS Code)
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Table 2.3.12 Use Case Cancel a Medicine Delivery Order by Patient

Use case name:	Manage Payroll	
Actor:	Administrator	
Goal:	Manage payroll efficiently by updating payroll information and generating payroll reports.	
Overview:	This use case describes the process of managing payroll for the system.	
Pre-Conditions	<p>The Administrator has access to the system.</p> <p>The employee has been added to the system.</p>	
Post-Conditions	Confirm the order and confirm the delivering date	
Basic path:	Step	Action
	01	The Administrator selects the "Manage Payroll" option in the payroll system.
	02	The Administrator updates an employee's payroll information, such as salary or benefits.
	03	The Administrator generates a payroll report for a specific pay period.
	04	The employee views their payroll details in the system
Alternative path	Step	Action
	02.a	If the Administrator does not have access to the payroll system, they cannot manage payroll.
	04.a	If the employee has not been added to the payroll system, they cannot view their payroll details.
NFRs	Availability, Reliability, Efficiency, Accuracy, Security	
TRs	User Interface (React.JS), server (Express), Database (MongoDB), Software (VS Code), Backend (Node.JS)	

Table 2.3.13 Use Case Manage Payroll by admin.

Use case name:	Manage Employee	
Actor:	Administrator	
Goal:	effectively manage employee information in the e-channeling system.	
Overview:	This use case describes the process of managing employee information.	
Pre-Conditions	The Administrator has access to the system.	
Basic path	Step	Action
	01	The Administrator selects the "Manage Employee" option in the employee management system.
	02	The Administrator adds a new employee, update employee information, delete employee in the system, including their personal information.
	03	The Administrator updates an employee's details, such as their contact information or job title.
	04	The Administrator generates a report for an employee, such as a performance review or attendance record.
	05	The employee views their personal information in the system.
Alternative path:	Step	Action
	01.a	If the Administrator does not have access to the system, they cannot manage employee information.
	05.a	If the employee does not exist in the system, they cannot view their personal information.
NFRs	Availability, Reliability, Efficiency, Accuracy, Security	
TRs	User Interface (React.JS), server (Express), Database (MongoDB), Software (VS Code), Backend (Node.JS)	

Table 2.3.14 Use Case Manage Employee by Administrator

Use case name	Manage Leave	
Actor	Administrator	
Goal	To efficiently manage employee leave requests in the e-channeling system by submitting and approving requests and viewing leave balances and request history.	
Overview	This use case describes the process of managing employee leave requests, including submitting requests, approving, or rejecting requests, and viewing leave balances.	
Pre-Conditions	<p>The Administrator has access to the system.</p> <p>The employee has a leave balance.</p>	
Basic path	Step	Action
	01	The employee submits a leave request in the system.
	02	The Administrator approves or rejects the leave request.
	03	The employee views their remaining leave balance in the system.
	04	The Administrator approves employee leave requests.
	05	The employee views their leave request history in the system.
Alternative path	Step	Action
	01.a	If the Administrator does not have access to the system, they cannot manage employee leave requests.
	03.a	If the employee does not have a leave balance, they cannot submit a leave request.
NFRs	Availability, Reliability, Efficiency, Accuracy, Security	

TRs	User Interface (React.JS), server (Express), Database (MongoDB), Software (VS Code), Backend (Node.JS)
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Table 2.3.15 Use Case Manage Leave by Administrator

Use case name:	Generating salary reports	
Actor:	Administrator	
Goal:	To generate accurate salary reports for the e-channeling system.	
Overview:	This use case describes the process of generating salary reports, including generating reports for specific pay periods, individual employees.	
Pre-Conditions	<p>Payroll information is updated and stored in the system.</p> <p>Employee information is updated and stored in the system.</p> <p>The administrator is logged into the system.</p>	
Post-Conditions	A salary report is generated based on the selected parameters.	
Basic path	Step	Action
	01	The administrator navigates to the salary reports page.
	02	The administrator selects the desired parameters for the report, such as pay period, individual employee, or department.
	03	The system generates the salary report based on the selected parameters.
	04	The administrator reviews the report and can export or print the report if necessary.
Alternative path:	Step	Action
	02.a	If there is an issue with the payroll or employee data, the administrator will need to resolve the issue before generating the salary report.
Non-functional requirements:	Availability, Reliability, Efficiency, Accuracy, Security	

Technical Requirement:	User Interface (React.JS), server (Express), Database (MongoDB), Software (VS Code), Backend (Node.JS)
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Table 2.3.16 Use Case Generating Salary Report by Administrator

Use case name:	Mark Attendance	
Actor:	Staff	
Goal:	Mark staff attendance in efficient manner	
Overview:	This use case describes the process of marking attendance	
Pre-Conditions	<p>Staff information is updated and stored in the system.</p> <p>The staff member is logged into the system.</p>	
Post-Conditions	The staff member's attendance is recorded in the system.	
Basic path	Step	Action
	01	The staff member submits the attendance on system given method.
	02	The system records the attendance data.
	03	The system gives a message it recorded successfully to the staff member.
	04	The staff member can view their attendance history and any discrepancies.
Alternative path	Step	Action
	01.a	If a staff member does not have access to the system, they cannot mark attendance.
	03.a	If there is an issue with record attendance, the staff member should report the issue to their supervisor.
NFRs	Availability, Reliability, Efficiency, Accuracy, Security	
TRs	User Interface (React.JS), server (Express), Database (MongoDB), Software (VS Code), Backend (Node.JS)	

Table 2.3.17 Use Case Mark Attendance by Employee manager

Use case name	Make Leave	
Actor	Staff	
Goal	Make leave in efficient manner	
Overview	This use case describes the process of marking leaves	
Pre-Conditions	<p>Staff information is updated and stored in the system.</p> <p>The staff member is logged into the system.</p>	
Post-Conditions	The staff member has submitted a leave request and can view the status of their request.	
Basic path	Step	Action
	01	The staff member navigates to the leave page.
	02	The staff member views their leave balance and available leave types.
	03	The staff member submits a leave request, including the type of leave, dates, and reason.
	04	The system sends the leave request to the staff member's supervisor for approval.
	05	The staff member can view the status of their leave request and any approved or rejected leave.
Alternative path	Step	Action
	03.a	If there is an issue with the leave request, the staff member should report the issue to admin.
NRs	Availability, Reliability, Efficiency, Accuracy, Security	
TRs	User Interface (React.JS), server (Express), Database (MongoDB), Software (VS Code), Backend (Node.JS)	

Table 2.3.28 Use Case Make Leave by Employee Manager

Use Case Name	Update Service Catalog	
Actor	Financial Manager	
Goal	To add changes to the service catalog.	
Overview	Updates descriptions and prices of the services provided.	
Preconditions	The user logs in.	
Postconditions	Create updated service catalog.	
Basic Path	Step	Action
	1	The user selects update service catalog.
	2	Search and selects the relevant services.
	3	The user enters new data.
	4	The user saves and finishes update.
	5	The system displays a success message.
	6	The system updates the service catalog according to the given data.
	7	The system displays a success message.
Alternative Path	Step	Action
	5a	If displays an error message re-enter data.
Non-functional Requirements	Maintainability, Security and access control, Scalability	
Technical Requirements	MongoDB, React JS, Express JS, and Node JS	

Table 2.3.39 Use Case Update Service Catalog by Financial Manager

Use Case Name	Generate reports	
Actor	Financial Manager	
Goal	To generate financial reports according to the current ledgers.	
Overview	Update financial status accurately and generate the report.	
Preconditions	The user logs in.	
Postconditions	Save and display financial report.	
Basic Path	Step	Action
	1	The user selects to generate a new financial report.
	2	The user enters data into the report.
	3	The user saves the report in the database.
NDRs	Maintainability and Scalability	
TRs	MongoDB, React JS, Express JS and Node JS	

Table 2.3.204 Use Case Generate Reports by Financial Manager

Use Case Name	View ledgers	
Actor	Financial Manager	
Goal	To view the business ledgers and accountings.	
Overview	The user views and checks the ledgers.	
Preconditions	The user logs in to the system.	
Postconditions	The system displays the ledgers.	
Basic Path	Step	Action
	1	The user selects to view the ledgers.
	2	The system request verification.
	3	The user enters verification details.
	4	The system checks verification details.
	5	The system displays verification successful massage.
	6	The system redirects to the ledger.
Alternative Path	Step	Action
	5a	The system displays a verification unsuccessful massage.
	5b	The system redirects to the dashboard.
NFRs	Security and access control, Reliability, Availability	
TRs	MongoDB, React JS, Express JS, and Node JS	

Table 2.3.21 Use Case View Ledger by Financial Manager

Use Case Name	View reports	
Actor	Financial Manager	
Goal	To view the reports.	
Overview	The user views financial reports	
Preconditions	The user logs in to the system.	
Postconditions	The system displays the reports.	
Basic Path	Step	Action
	1	The user views the report list.
	2	The user chooses the report.
	3	The system request verification.
	4	The user enters verification details.
	5	The system checks verification details.
	6	The system displays verification successful massage.
	7	The system displays the report.
Alternative Path	Step	Action
	5a	The system displays a verification unsuccessful massage.
	5b	The system redirects to the dashboard.
NFRs	Security and access control, Reliability, Availability	
TRs	MongoDB, React JS, Express JS, and Node JS	

Table 2.3.22 Use Case View Reports by Financial Manager

Use Case Name	Compliance Handling	
Actor (s)	Customer Service Officer	
Goal	Provide best customer service	
Overview	View mails	
Pre-Condition	Login into the site	
Post-Condition	Display “Successfully connected” message	
Basic Path	1	Log into the system and select “Mail tab
	2	Display mail list
	3	Select user and reply to their messages
	4	Send payment errors to accountant for fix issues
	5	Go back and redirect to the dashboard
Alternative Path	1a	If login details are incorrect display “Invalid Login” message
	2a	If connection is unstable display “Connection Error” message
	3a	If mistakenly select “Delete Chat” button show confirmation message to select “Yes/No”
	4a	If not selected chat display “Please select chat” message
NFRs	Reliability, Security, Usability, Maintainability	
TRs	User Interface (ReactJS), server (Express), Database (MongoDB), Software (VS Code), Backend (NodeJS)	

Table 2.3.23 Use Case Compliance Handling by Customer Service Officer

Use Case Name	Communicate with customers	
Actor (s)	Customer Service Officer	
Goal	Provide best customer service	
Overview	Using chat bot reply to the users immediately	
Pre-Condition	Login into the site	
Post-Condition	Display “Successfully connected” message	
Basic Path	1	Log into the system and select “Chat-Bot” tab
	2	Display chat list and online users
	3	Select user and reply to their messages according to the online users
	4	Download chat history
	5	Go back and redirect to the dashboard
Alternative Path	1a	If login details are incorrect display “Invalid Login” message
	2a	If connection is unstable display “Connection Error” message
	3a	If mistakenly select “Delete Chat” button show confirmation message to select “Yes/No”
	4a	If not selected chat display “Please select chat” message
NFRs	Reliability, Security, Usability, Maintainability	
TRs	User Interface (ReactJS), server (Express), Database (MongoDB), Software (VS Code), Backend (NodeJS)	

Table 2.3.24 Use Case Communicate with customer-by-Customer Service Officer

Use Case Name	Do online surveys	
Actor (s)	Customer Service Officer	
Goal	To improve our system and know what we give to our customers	
Overview	Users can fill the surveys	
Pre-Condition	Login into the site	
Post-Condition	Generate survey reports and send it to management	
Basic Path	Step	Action
	1	Log into the system dashboard and select “Survey” tab
	2	Select “Create Survey”
	3	Create forum and add questions, ratings to the forum
	4	Click “Submit to Manager” tab
	5	Redirect to the dashboard
Alternative path	Step	Action
	1a	If login details incorrect display “Invalid Username or Password”
	1b	If click forgot password redirect to the password change portal
	4a	If survey is not complete successfully display “Can’t submit, please check again”
NFRs	Reliability, Security, Usability, Maintainability	
TRs	User Interface (ReactJS), server (Express), Database (MongoDB), Software (VS Code), Backend (NodeJS)	

Table 2.3.25 Use Case Do Online Surveys by Customer Service Officer

Use case name:	Add Test Data	
Actor:	Lab Analyst	
Goal:	Successfully record new test data	
Overview:	Accurately and efficiently manage new tests and deliver accurate results to healthcare providers.	
Pre-Conditions	Login to the system	
Post-Conditions	Generate the completed test report.	
Basic path	Step	Action
	01	The lab analyst login into the system.
	02	Go to the system settings and menus.
	03	Select on new Test record option.
	04	The system display record form
	05	Then the lab analyst fills the form that the test data has
	06	Then save the test data that fills in step 5.
	07	System checks the data entered whether correct or not
Alternative path:	Step	Action
	01.a	If not registered to the site, register first.
	01.b	If the login details are wrong, display an error message.
	07.a	If the input form has error the system displays “Saving error” message
NFRs	Reliability, Security, Usability, Maintainability	

TRs	User Interface (ReactJS), server (Express), Database (MongoDB), Software (VS Code), Backend (NodeJS)
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Table 2.3.26 Use Case Add Test Data by Lab Analyst

Use case name:	Update Test Data	
Actor:	Lab Analyst	
Goal:	Successfully updated test data	
Overview:	View the test report and update the relevant test data.	
Pre-Conditions	Login to the system	
Post-Conditions	Generate the totally updated test report and notify the patient/user.	
Basic path	Step	Action
	01	The lab analyst login into the system.
	02	Go to the system settings and menus.
	03	Select the updated test records option.
	04	The system displays the available tests that is recorded before
	05	Then the lab analyst selects the test data that he/she wants to update.
	06	Then press the update from available options.
	07	The system displays the test data that is recorded before.
	08	The lab analyst changes the data that displayed in the form
	09	Save the updated fill form.
Alternative path	Step	Action
	09.a	If the input form has error the system displays “Saving error” message

NFRs	Reliability, Security, Usability, Maintainability
TRs	User Interface (ReactJS), server (Express), Database (MongoDB), Software (VS Code), Backend (NodeJS)

Table 2.3.27 Use Case Update Test Data by Lab Analyst

Use case name:	View Report	
Actor:	Lab Analyst	
Goal:	Display the searched test report efficiently	
Overview:	To generate accurate and totally updated details reports for each test.	
Pre-Conditions	Login to the system	
Post-Conditions	View the totally updated test report.	
Basic path	Step	Action
	01	The lab analyst login into the system
	02	The lab analyst uses the option of the search report.
	03	Click on search test report.
	04	Prompt the name of the test report or the identification of the test.
	05	Press GO button to see the data of test.
	06	If exist, it displays on the screen
Alternative path	Step	Action
	06.a	If the report data is not available, then system displays “Not exist” message
NFRs	Reliability, Security, Usability, Maintainability	
TRs	User Interface (ReactJS), server (Express), Database (MongoDB), Software (VS Code), Backend (NodeJS)	

Table 2.3.28 Use Case View Report by Lab Analyst

Use case name:	Appointment Cancellation	
Actor:	Receptionist	
Goal:	To cancel any of scheduled appointment	
Overview:	View the schedule report and remove or delete the relevant scheduled appointment.	
Pre-Conditions	Login to the site	
Post-Conditions	Generate the totally updated appointment schedule report and notify the patient/user.	
Basic path:	Step	Action
	01	Log in to the system and redirect to receptionist dashboard.
	02	View the Schedule report.
	03	Search and select the relevant appointment id.
	04	Press "delete/remove" button in front the appointment.
	05	Submit the removing and site will display a success message.
Alternative path	Step	Action
	03.a	If searched appointment id is not valid, view all appointment report of its category.
Non-functional requirements:	Availability, Performance(speed), Reliability	
Technical Requirement:	User Interface (ReactJS), server (Express), Database (MongoDB), Software (VS Code), Backend (NodeJS)	

Table 2.3.29 Use Case Appointment Cancellation by Receptionist

Use case name:	Generating reports regarding appointments	
Actor:	Receptionist	
Goal:	To generate accurate and totally updated appointment details reports for each appointment as well as all.	
Overview:	Update the appointment status and generate the reports.	
Pre-Conditions	Login to the site	
Post-Conditions	View the totally updated appointments schedule report.	
Basic path:	Step	Action
	01	Log in to the system and redirect to receptionist dashboard.
	02	Click the "Generate total report" button located in navigation bar.
NFRs	Availability, Performance(speed), Maintainability, Reliability	
TRs	User Interface (ReactJS), server (Express), Database (MongoDB), Software (VS Code), Backend (NodeJS)	

Table 2.3.30 Use Case Generating Reports Regarding Appointment by Receptionist

Use case name:	Managing Appointments	
Actor:	Receptionist	
Goal:	To edit or update any of scheduled appointment	
Overview:	View the schedule report and update the relevant scheduled appointment.	
Pre-Conditions	Login to the site	
Post-Conditions	Generate the totally updated appointment schedule report and notify the patient/user.	
Basic path	Step	Action
	01	Log in to the system and redirect to receptionist dashboard.
	02	View the Schedule report.
	03	Search and select the relevant appointment id.
	04	Press "edit or update" button in front the appointment.
	05	Enter the data what should updated or edited.
	06	Submit the update for save. Site will display a success message.
Alternative path	Step	Action
	05.a	If site display alert messages for data inserting, input type must change.
	06.a	If site display an error message, re-enter, and submit the edited data.
NFRs	Availability, Performance(speed), Maintainability	
Technical Requirement:	User Interface (ReactJS), server (Express), Database (MongoDB), Software (VS Code), Backend (NodeJS)	

Table 2.3.31 Use Case Managing Appointments by Receptionist

Use case name:	Appointment Scheduling	
Actor:	Receptionist	
Goal:	To schedule a new appointment for patient/user as their case	
Overview:	View the schedule report and schedule the new appointment for a not allocated time.	
Pre-Conditions	Login to the site	
Post-Conditions	Generate the completed appointment report that scheduled.	
Basic path:	Step	Action
	01	Log in to the system and redirect to receptionist dashboard.
	02	Select the appointment category from the dropdown located in navigation bar of receptionist dashboard.
	03	Check the schedule report for availabilities require to user/Patient
	04	Make the appointment as per requirement.
	05	Recheck the scheduled appointment report.
Alternative path:	Step	Action
	01.a	If not registered to the site, register first.
	01.b	If the login details are wrong, display an error message.
	03.a	If requested time is allocated, suggest a new time or date by referring the schedule.
NFRs	Availability, Performance(speed)	

TRs	User Interface (ReactJS), server (Express), Database (MongoDB), Software (VS Code), Backend (NodeJS)
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Table 2.3.32 Use Case Appointment Scheduling by Receptionist

Use case name:	Reordering	
Actor:	Inventory officer	
Goal:	To order new stocks when stock limit comes to the ordering level	
Overview:	View the order report, order the stocks that ran out and ask for a certain date to be delivered	
Pre-Conditions	Login to the site as inventory officer	
Post-Conditions	Confirm the order and confirm the delivering date	
Basic path:	Step	Action
	01	Log in to the system and redirect to inventory dashboard
	02	Select the Reorder from the navigation bar on the inventory dashboard.
	03	Fill the Stocks reordering report and send it for the confirmation
	04	Once receive the confirmation, send the full report to be billing and payment team to make the payment.
	05	Recheck the order report.
Alternative path:	Step	Action
	01.a	If the login details are wrong, display an error message
	01.b	Reset the password by clicking on the forget password
	03.a	If the confirmation is late sending an email.
Non-functional requirements:	Scalability, Manageability, Capacity	

Technical Requirement:	User Interface (React.JS), server (Express), Database (MongoDB), Software (VS Code), Backend (Node.JS)
-------------------------------	--------------------------------------------------------------------------------------------------------

Table 2.3.335 Use Case Reordering by Inventory Officer

Use case name:	Generating stock report	
Actor:	Inventory officer	
Goal:	To Generate stocks, report to send	
Overview:	Generate each report week by week	
Pre-Conditions	Login to the site as inventory officer	
Post-Conditions	Send the stocks reports to Management	
Basic path:	Step	Action
	01	Log in to the system and redirect to inventory dashboard
	02	Select the view stocks availability from the navigation bar on the inventory dashboard.
	03	Click on print option on the left corner
	04	Click on the Download option
	05	Recheck the stocks report.
Alternative path:	Step	Action
	01.a	If the login details are wrong, display an error message
	01.b	Reset the password by clicking on the forget password
NFRs	Accuracy, Manageability, Usability	
TRs	User Interface (React.JS), server (Express), Database (MongoDB), Software (VS Code), Backend (Node.JS)	

Table 2.3.34 Use Case Generating Stock Report by Inventory Officer

Use case name:	Dispatch Stocks	
Actor:	Inventory officer	
Goal:	To dispatch stocks throughout the departments	
Overview:	Distribute stocks throughout the departments	
Pre-Conditions	Login to the site as inventory officer	
Post-Conditions	Send the stocks reports to Management	
Basic path	Step	Action
	01	Log in to the system and redirect to inventory dashboard
	02	Select the view stocks availability from the navigation bar on the inventory dashboard.
	03	Click on print option on the left corner
	04	Click on the Download option
	05	Recheck the stocks report.
Alternative path:	Step	Action
	01.a	If the login details are wrong, display an error message
	01.b	Reset the password by clicking on the forget password
Non-functional requirements:	Accuracy, Manageability, Usability	
Technical Requirement:	User Interface (React.JS), server (Express), Database (MongoDB), Software (VS Code), Backend (Node.JS)	

Table 2.3.35 Use Case Dispatch Stocks by Inventory Officer

3. Design and Development

3.1. Class Diagram

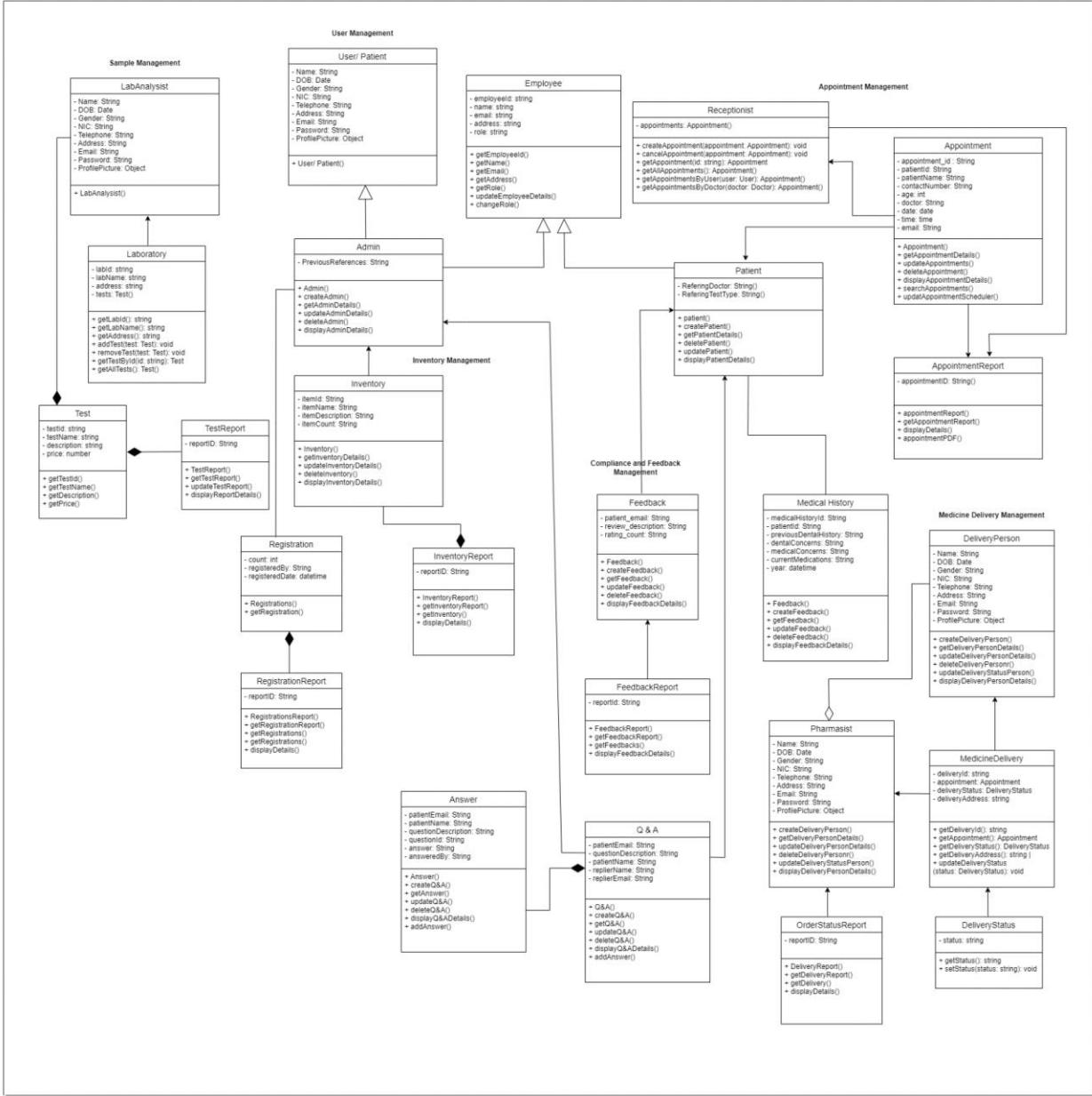


Figure 3.1.1 Class Diagram

3.2. ER Diagram

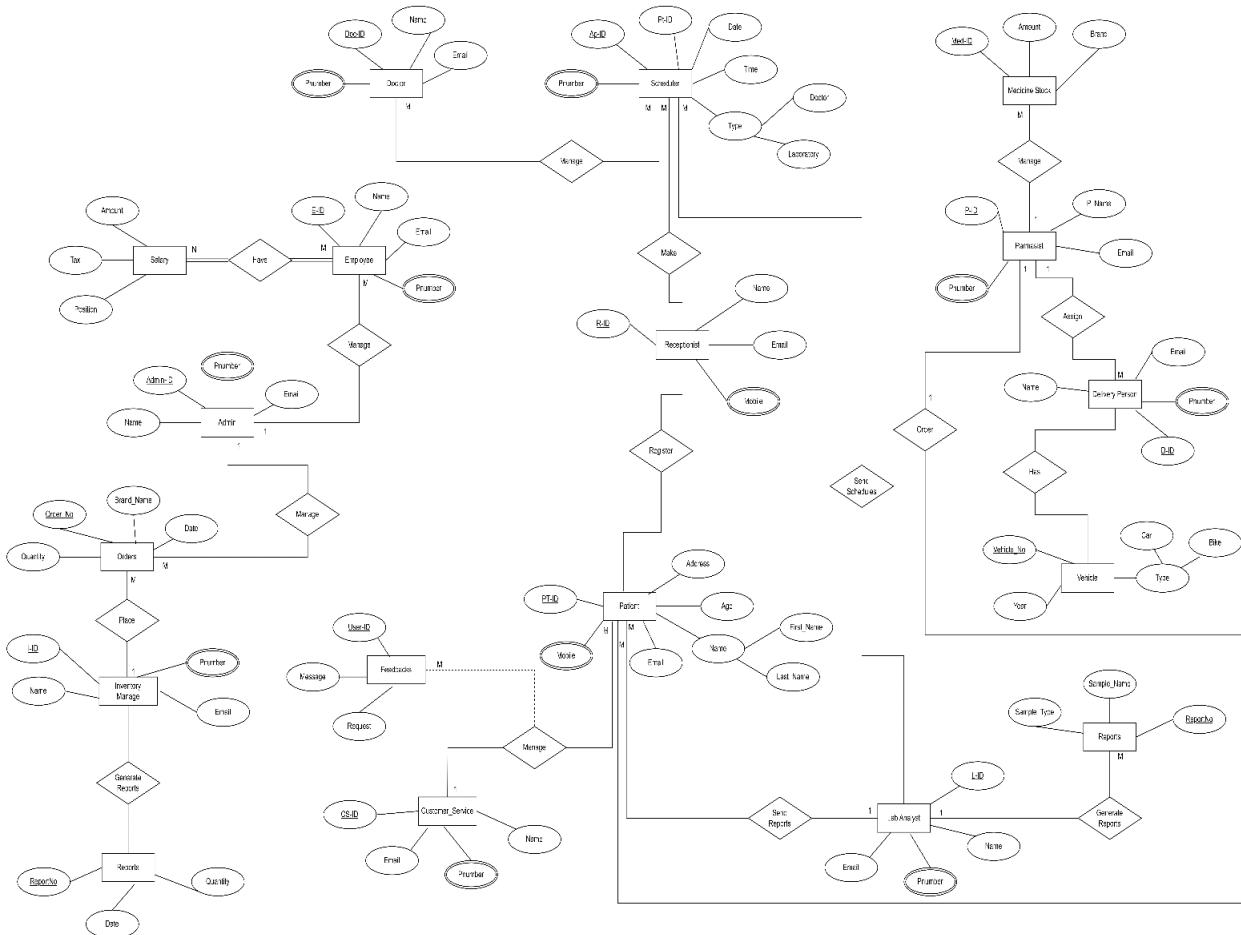


Figure 3.1.2 ER Diagram

3.3. High Level architecture Diagram

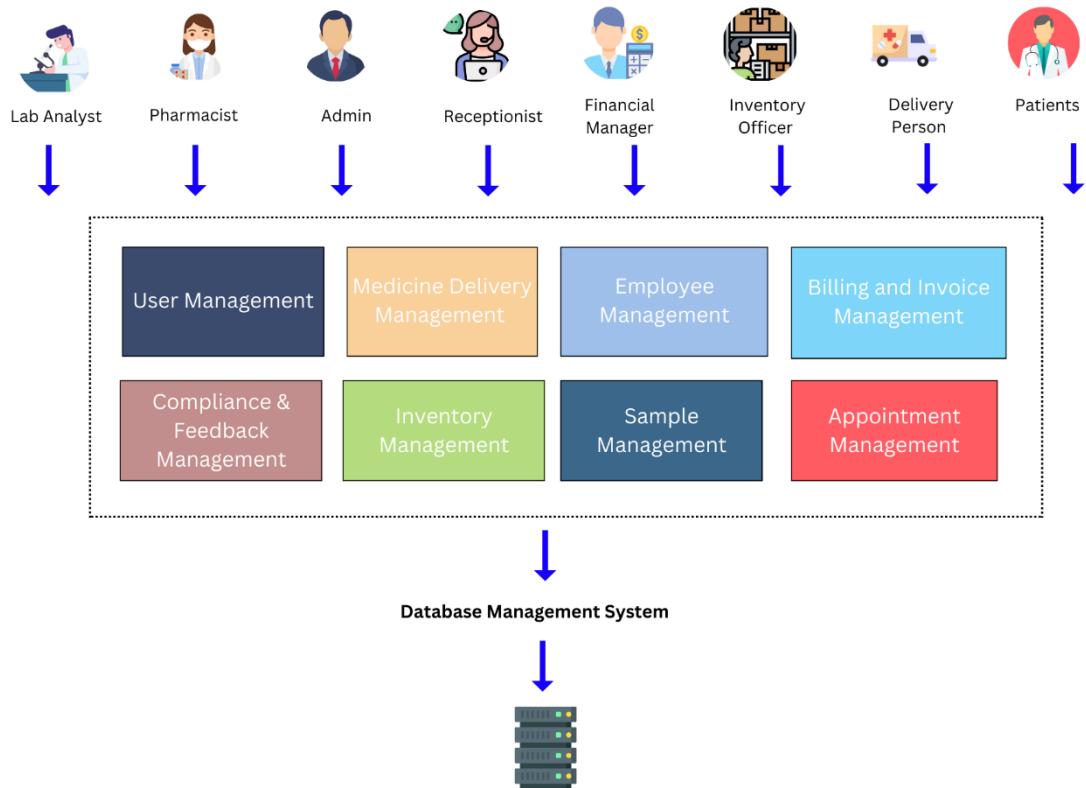


Figure 3.3.1 High Level Architecture Diagram

3.4. Screenshots of each Function

3.4.1. User Management

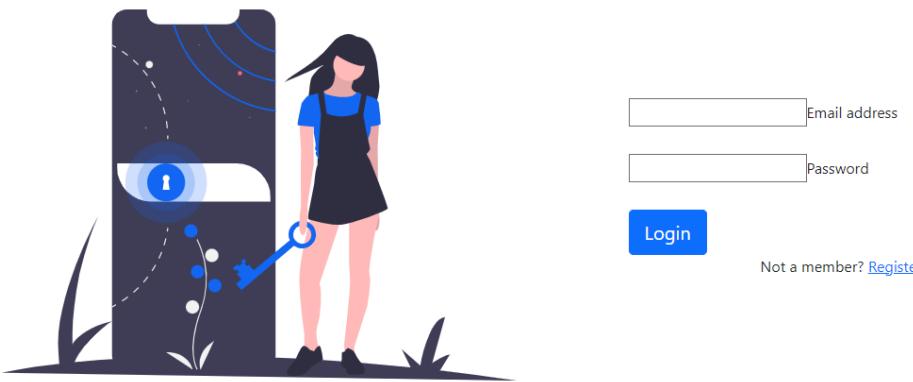


Figure 3.4.1.1 User Management Login

Register

Title: <input type="text" value="--Select--"/>	First Name <input type="text"/>	Last Name <input type="text"/>
User Type <input type="text" value="user"/>	NIC Number <input type="text"/>	Mobile Number <input type="text"/>
Email <input type="text"/>		
Address <input type="text"/>		
Password <input type="text"/>	Confirm Password <input type="text"/>	
<input checked="" type="checkbox"/> Register		<input type="button" value="Cancel"/>

Already Have a account? [Login](#)

Figure 3.4.1.2 User Management Register

All Users									<input type="text" value="Search"/>	
	Title	First Name	Last Name	User Type	NIC Number	Mobile Number	Email			
1	Mr	Tharaka Madushanka	Wanshathilaka	admin	200014802209	0711348175	tharaka.tmw7@gmail.com	<button>Edit</button>	<button>Delete</button>	
2	Mr	Hashan	Madhuwantha	Pharmacist	200015305509	0714518365	hashan@gmail.com	<button>Edit</button>	<button>Delete</button>	
3	Mr	Vishak	Nayanajith	Delivery Person	200012556698	0784458478	vishak@gmail.com	<button>Edit</button>	<button>Delete</button>	
4	Miss	Dasunika	Sewwandhi	user	200045896603	0751248189	dasu@gmail.com	<button>Edit</button>	<button>Delete</button>	
5	Miss	Rashmi	Nathasha	admin	200002173307	0711346179	nathzi@gmail.com	<button>Edit</button>	<button>Delete</button>	
6	Dr	Susil	Kulathilaka	user	665889152V	0712345789	susil.k@sliit.lk	<button>Edit</button>	<button>Delete</button>	
7	Mr	Ashan	Promodhya	user	200015268892	0712345789	ashan@gmail.com	<button>Edit</button>	<button>Delete</button>	
8	Prof	Koliya	Pulasinghe	user	662233212V	0111546195	koliyap@sliit.lk	<button>Edit</button>	<button>Delete</button>	
9	Mr	example	123	user	200011111112	0713698865	example@email.com	<button>Edit</button>	<button>Delete</button>	

[Add New User](#)
[PDF Report](#)

Figure 3.4.1.3 User Management All Users

Create User

Title: <input type="text" value="--Select--"/>	First Name <input type="text"/>	Last Name <input type="text"/>
User Type <input type="text" value="user"/>	NIC Number <input type="text"/>	Mobile Number <input type="text"/>
Email <input type="text"/>		
Address <input type="text"/>		
Password <input type="text"/>	Confirm Password <input type="text"/>	
<input style="background-color: #007bff; color: white; border: none; padding: 5px 10px; margin-right: 10px;" type="button" value="Add"/> <input style="background-color: #ffc107; color: black; border: none; padding: 5px 10px;" type="button" value="Cancel"/>		

Figure 3.4.1.4 User Management Create User

Edit User

Title: Mr	First Name: Tharaka Madushanka	Last Name: Wanshathilaka
User Type: admin	NIC Number: 200014802209	Mobile Number: 0711348175
Email: tharaka.tmw7@gmail.com		
Address: Ratnapura		
<input checked="" type="button"/> Update User		<input type="button"/> Cancel

Figure 3.4.1.5 User Management Edit User

User Details

Title: Mr	First Name: Tharaka Madushanka	Last Name: Wanshathilaka
User Type: admin	NIC Number: 200014802209	Mobile Number: 0711348175
Email: tharaka.tmw7@gmail.com		
Address: Ratnapura		

Figure 3.4.1.6 User Management User Details

All User Details (1).pdf

1 / 1 | - 100% + | :

Title	First Name	Last Name	User Type	NIC Number	Mobile Number	Email
1	Mr	Tharaka Madushanka	admin	200014802209	0711348175	tharaka.tmw7@gmail.com
2	Mr	Hashan	Pharmacist	200015305509	0714518365	hashan@gmail.com
3	Mr	Vishak	Delivery Person	200012556698	078458478	vishak@gmail.com
4	Miss	Dasunika	user	200045896603	0751248189	dasu@gmail.com
5	Miss	Rashmi	admin	200002173307	0711346179	nathzi@gmail.com
6	Dr	Susil	user	665889152V	0712345789	susil.k@sliit.lk
7	Mr	Ashan	user	200015268892	0712345789	ashan@gmail.com
8	Prof	Koliya	user	662233212V	0111546195	koliyap@sliit.lk
9	Mr	example	user	200011111112	0713698865	example@email.com

Figure 3.4.1.7 User Management All User Details PDF Report

3.4.2.Appointment Management

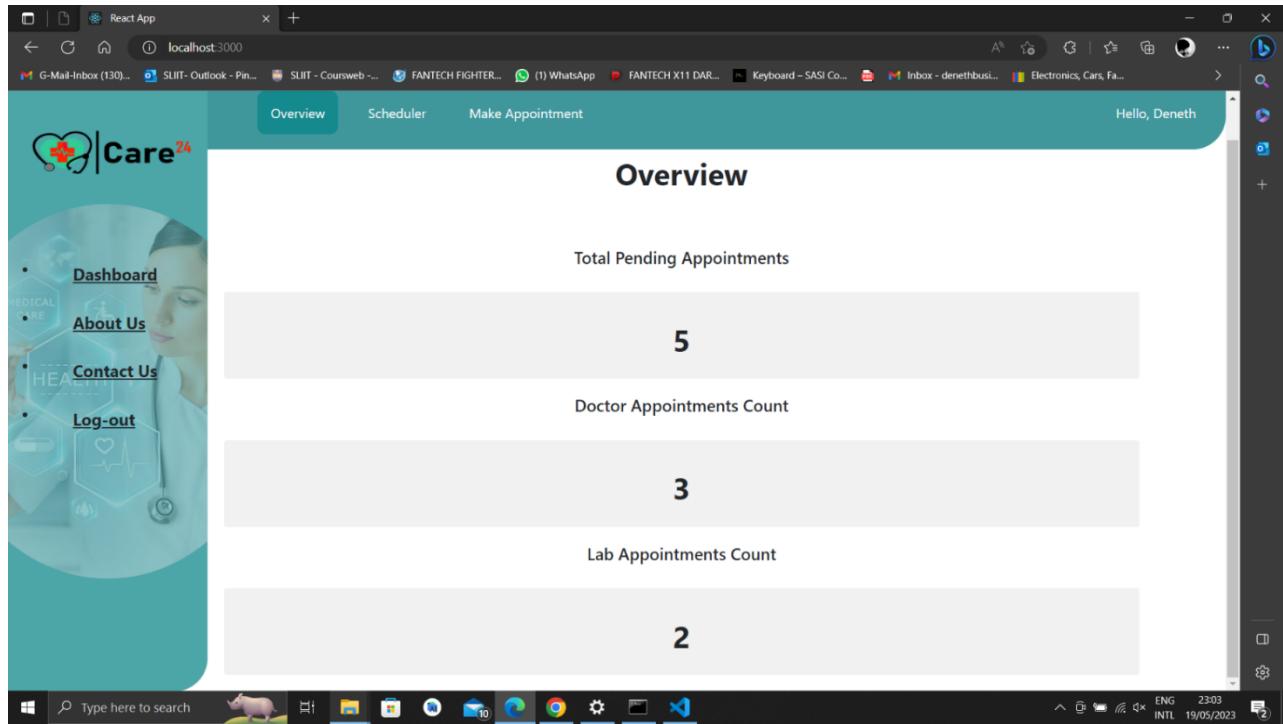


Figure 3.4.2.1 Landing page of Receptionist

The screenshot shows the 'Scheduler' tab of the Care24 application. The interface is divided into two main sections:

- Doctor Appointments Scheduler:** Displays a table of scheduled appointments for doctors. The columns include Patient ID, Patient Name, Contact Number, Age, Doctor, Date, Time, and E-mail. Two entries are shown:

Patient ID	Patient Name	Contact Number	Age	Doctor	Date	Time	E-mail
PID5872	Indu	746861387	20	Mr.Kalupahana S.T	2023-05-17	05.00pm - 07.00pm	indu@mail.com
PID5544	Tharindu	769379809	25	Mr.Premil Rajakrishna	2023-05-17	03.00pm - 05.00pm	tharindumanthajey@gmail.com

 Buttons for 'Update' and 'Cancel' are available for each entry.
- Lab Appointments Scheduler:** Displays a table of scheduled lab tests. The columns include Patient ID, Patient Name, Contact Number, Age, Test Type, Date, Time, and E-mail. Two entries are shown:

Patient ID	Patient Name	Contact Number	Age	Test Type	Date	Time	E-mail
PID2255	Amith	774666665	23	URINE	2023-05-25	07.00am - 09.00am	sayo@mail.com
PID4445	Nadee	785556233	24	BLOOD	2023-05-22	06.00pm - 08.00pm	nadee@mail.com

 Buttons for 'Update' and 'Cancel' are available for each entry.

The browser address bar shows 'localhost:3000/scheduler'. The taskbar at the bottom includes icons for File Explorer, Edge, and other system tools.

Figure 3.4.2.2 Appointment Scheduler

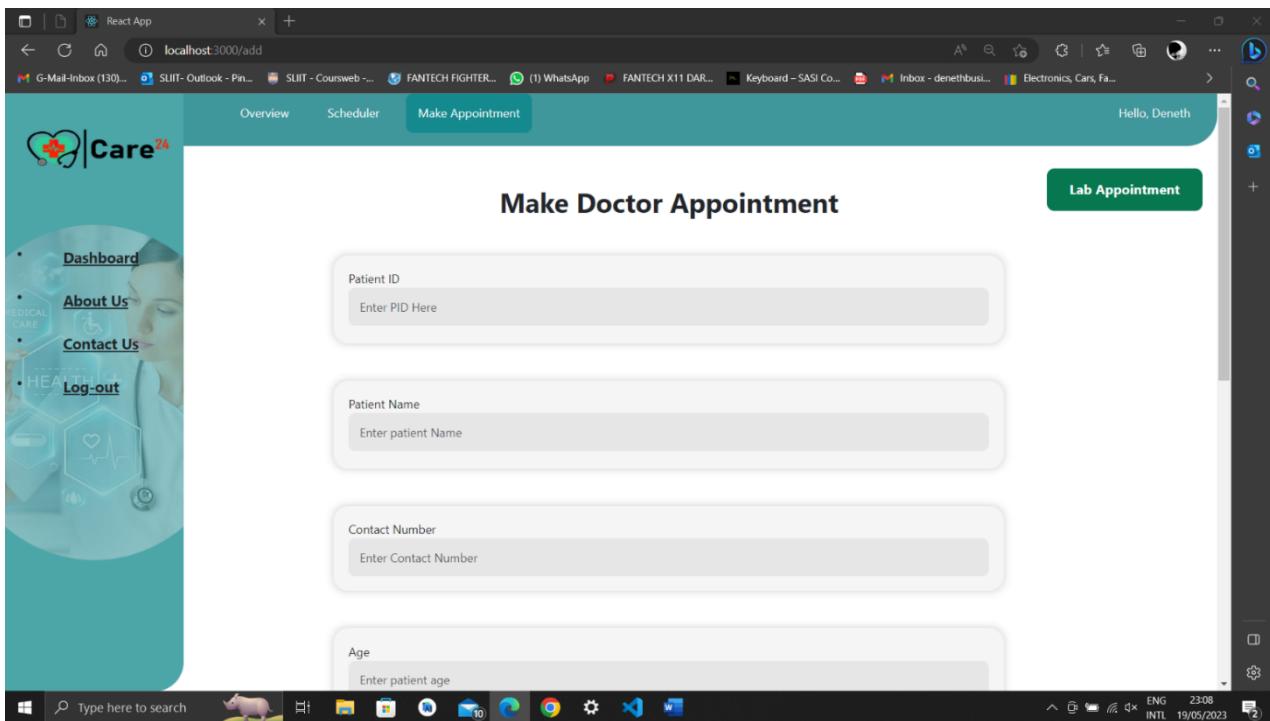


Figure 3.4.2.3 Make Appointment (Doctor/Lab)

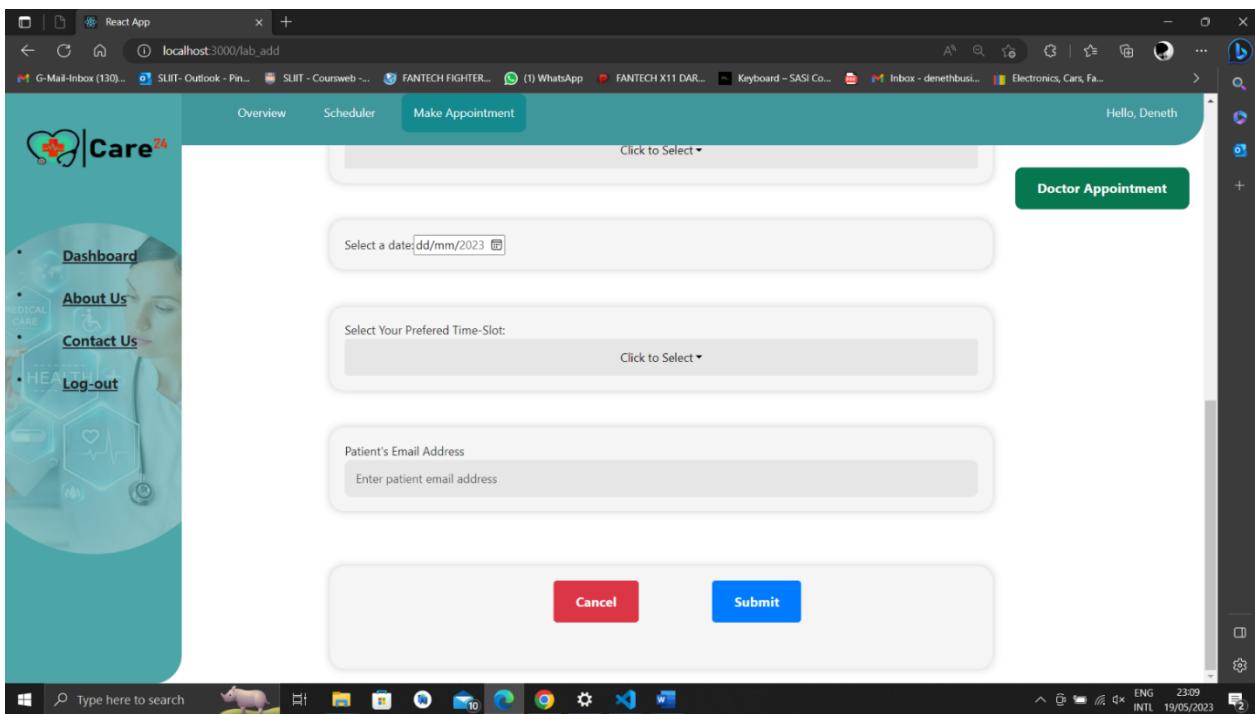


Figure 3.4.2.4 Make Appointment (Doctor/Lab)

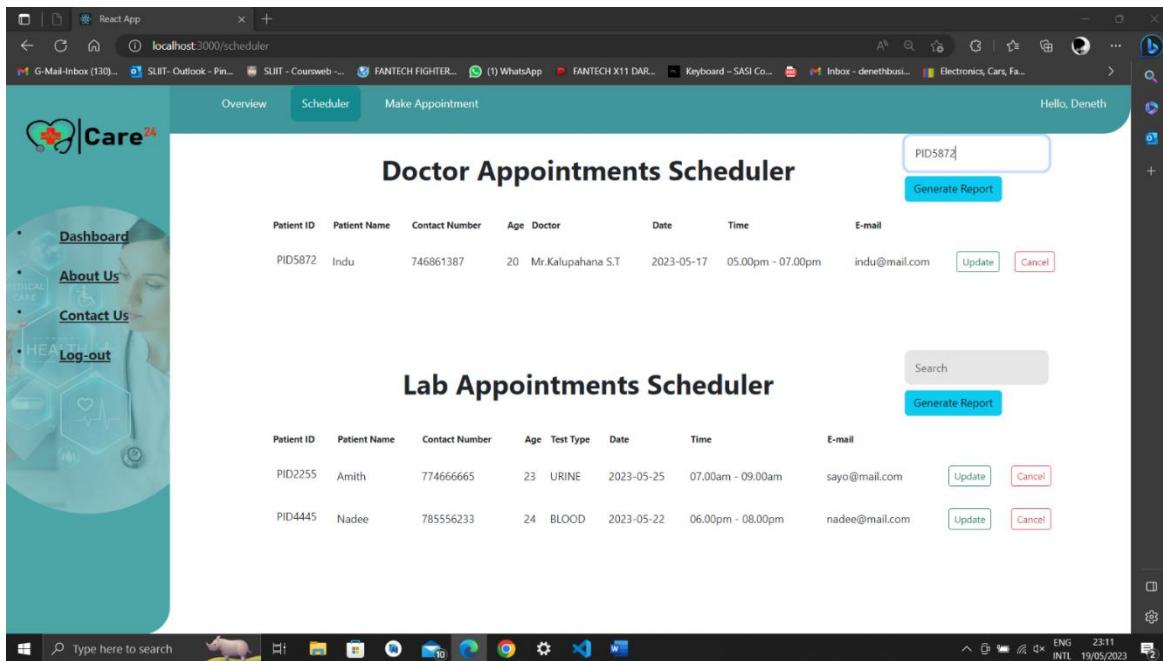


Figure 3.4.2.5 Search Appointments (Doc/Lab)

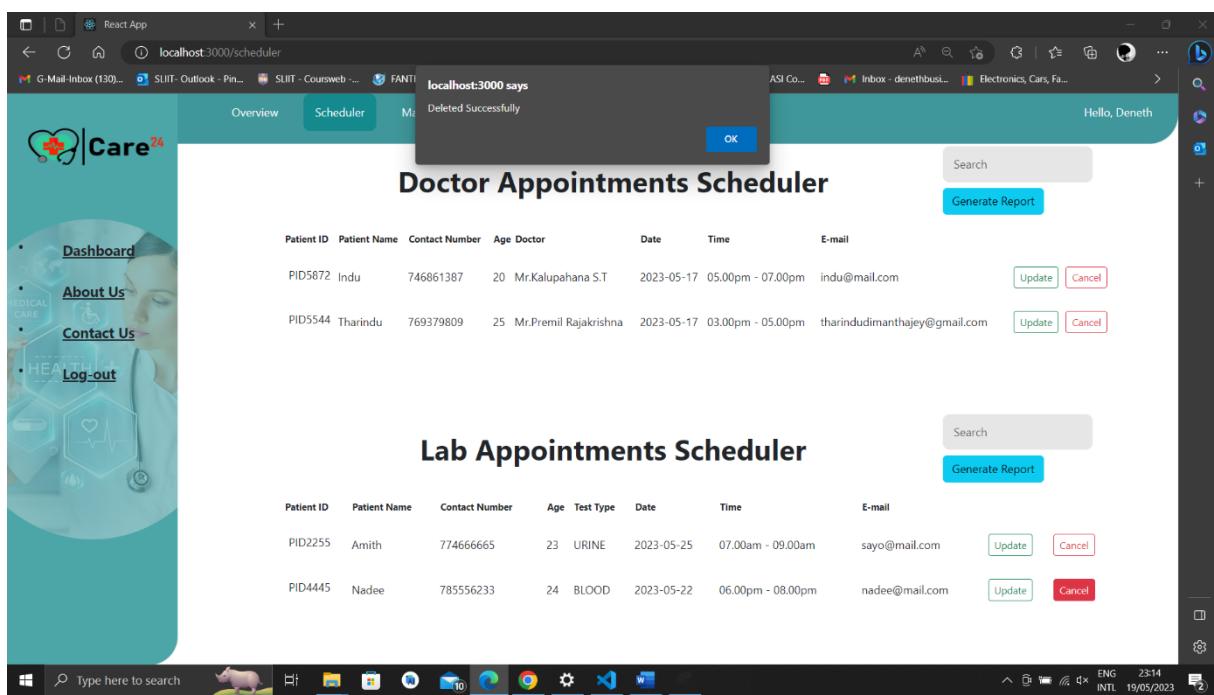


Figure 3.4.2.6 Delete Appointment (Doctor/Lab)

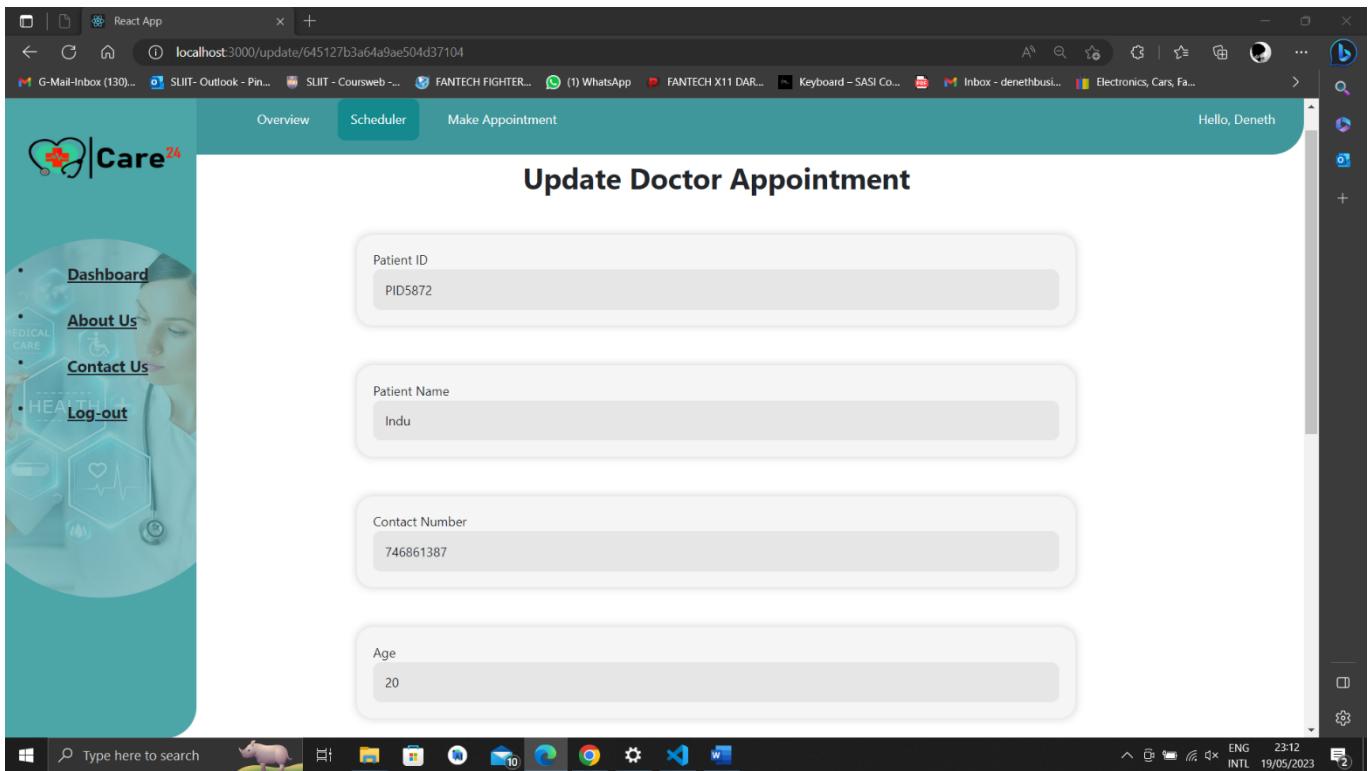


Figure 3.4.2.7 Update Appointment (Doctor/Lab)

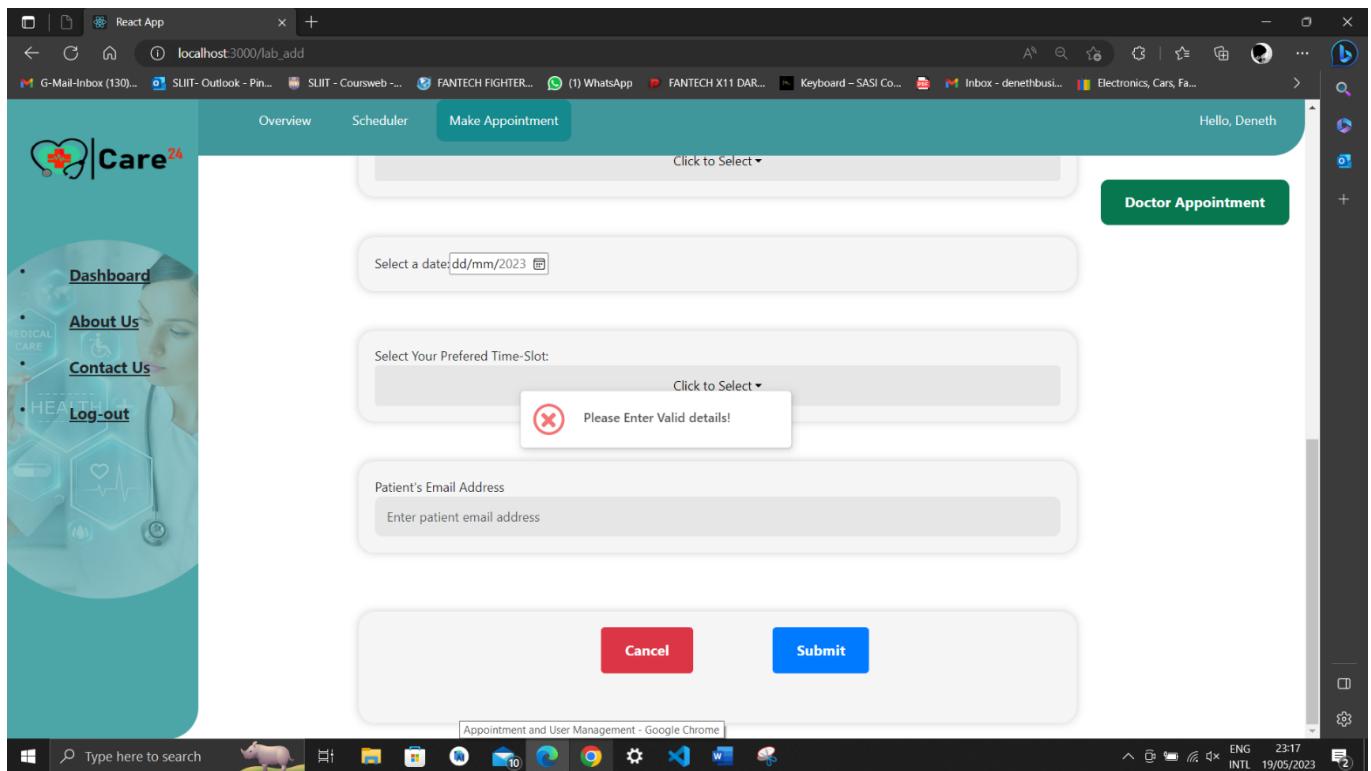


Figure 3.4.2.8 Make Appointment (Doctor/Lab) – Validations

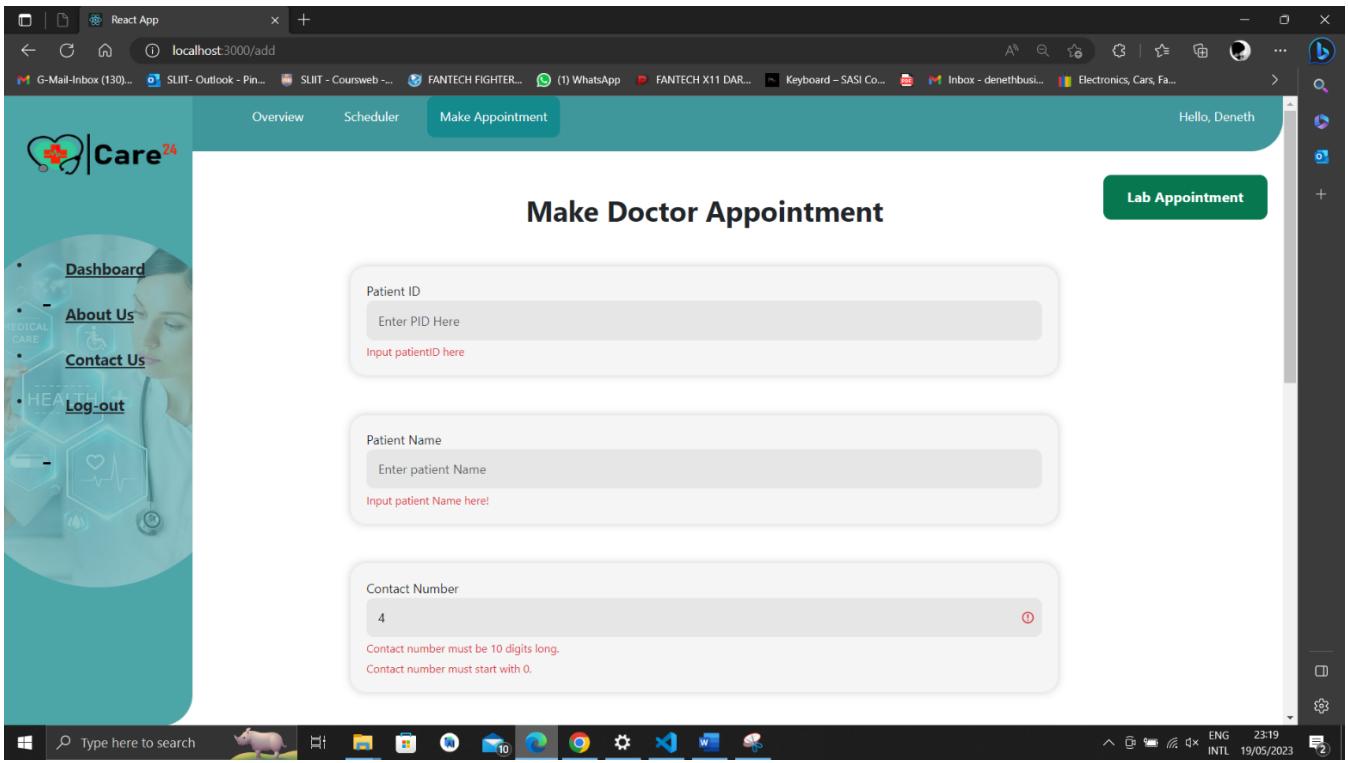


Figure 3.4.2.9 – Make Appointment (Doctor/Lab) – Validations

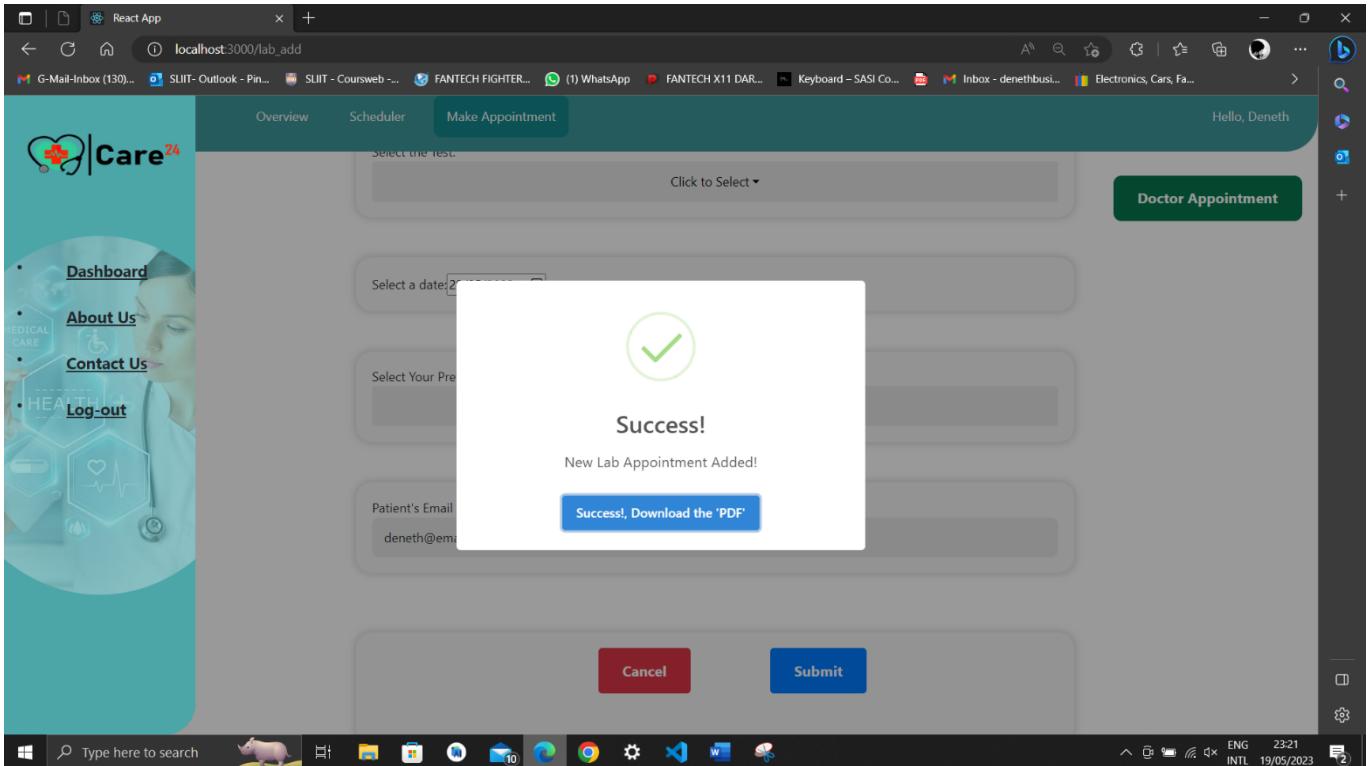


Figure 3.4.2.10 Appointment Success – Download as PDF

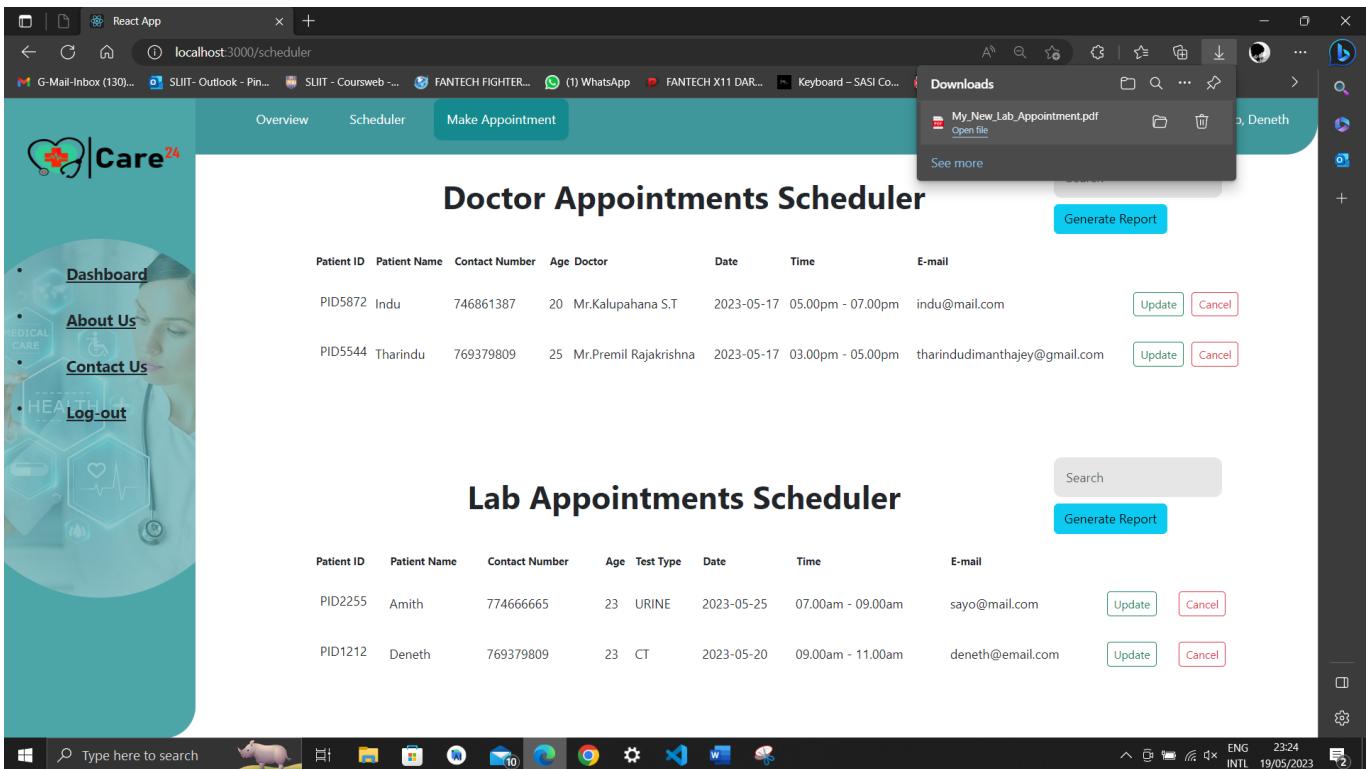


Figure 3.4.2.11 Generate Appointment Reports – Download of PDF

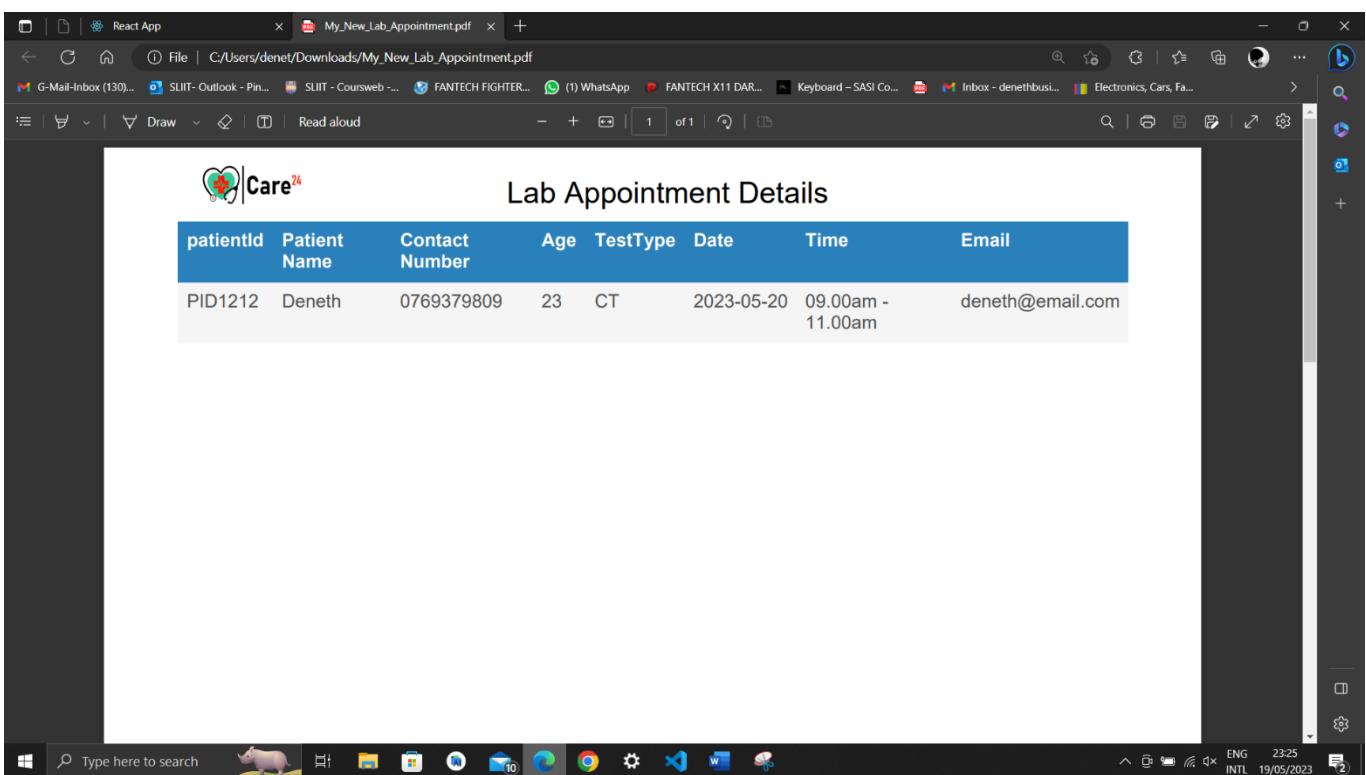


Figure 3.4.2.12 Make Appointment – Downloaded PDF

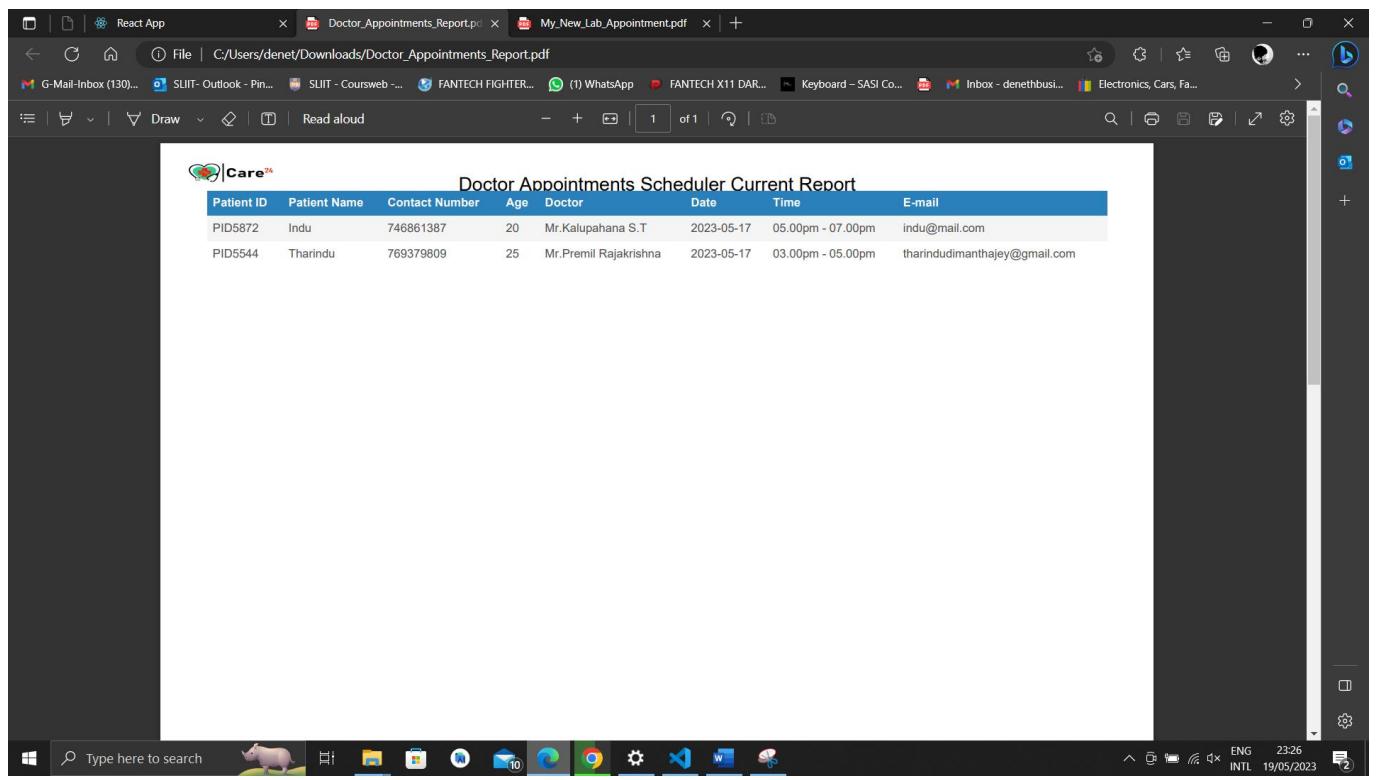


Figure 3.4.2.13 Report Generation PDF (Doctor/Lab)

3.4.3.Inventory Management

The screenshot shows a web application interface for managing inventory. At the top, there is a navigation bar with links for View Inventory, Reorder, Order History, Dispatch Items, and a greeting 'Hello,'. On the left, a sidebar features a logo for 'Care24' and links for Home, Contact us, About us, and Logout. The main content area is titled 'Inventory Items' and contains a search bar with the placeholder 'Search for Items(Item Code)'. Below the search bar is a blue button labeled 'GENERATE FULL INVENTORY REPORT'. A table lists six items with the following data:

Item Code	Brand	Department	Quantity	Edit	Delete
CC520	UKC	Channeling Center	5800	<button>UPDATE</button>	<button>REMOVE</button>
LB875	FRK	Laboratory	5750	<button>UPDATE</button>	<button>REMOVE</button>
CC900	SPMC	Channeling Center	5000	<button>UPDATE</button>	<button>REMOVE</button>
LB890	UGC	Laboratory	7850	<button>UPDATE</button>	<button>REMOVE</button>
LB2227	SPMC	Laboratory	2500	<button>UPDATE</button>	<button>REMOVE</button>
LB2578	Seaskymedical	Laboratory	2500	<button>UPDATE</button>	<button>REMOVE</button>

At the bottom of the screen, there is a taskbar with various icons and a system tray showing the date and time as 5/19/2023 at 10:35 PM.

Figure 3.4.3.1 View total inventory.

The screenshot shows a web application interface for placing a new order. At the top, there is a navigation bar with links for View Inventory, Reorder, Order History, Dispatch Items, and a greeting 'Hello,'. On the left, a sidebar features a logo for 'Care24' and links for Home, Contact us, About us, and Logout. The main content area is titled 'Make New Order' and contains the following form fields:

- Item Code:
- Quantity:
- Brand Name:
- Select Date: (with a calendar icon)

A large blue 'Submit' button is located at the bottom right of the form. At the bottom of the screen, there is a taskbar with various icons and a system tray showing the date and time as 5/19/2023 at 10:36 PM.

Figure 3.4.3.2 Reorder portal

The screenshot shows a web browser window titled "React App" at "localhost:3000/all". The page header includes "View Inventory", "Reorder", "Order History" (which is highlighted), and "Dispatch Items". A sidebar on the left features a doctor's profile picture and links for "Home", "Contact us", "About us", and "Logout". The main content area is titled "All New Orders" and contains fields for "Start Date" and "End Date". Below these is a "Generate Report" button. A table lists four items with columns for Item Code, Quantity, Brand Name, Required Date, and Delete (with "REMOVE" buttons). The table rows are:

Item Code	Quantity	Brand Name	Required Date	Delete
LB500	8520	SHK	2023-05-06	<button>REMOVE</button>
LB251	4500	FMC	2023-05-06	<button>REMOVE</button>
CC1230	5200	UKC	2023-05-09	<button>REMOVE</button>
LB458	8500	YKG	2023-05-08	<button>REMOVE</button>

Figure 3.4.3.3 All new order

The screenshot shows a web browser window titled "React App" at "localhost:3000/adddispatch". The page header includes "View Inventory", "Reorder", "Order History", and "Dispatch Items". The sidebar on the left is identical to Figure 3.4.3.3. The main content area is titled "Dispatch stocks" and contains the following form fields:

- "Item Code" input field with placeholder "Enter Item Code"
- "Select the Brand:" dropdown menu showing "USF"
- "Select the Department:" dropdown menu showing "Click to Select"
- "Quantity" input field with placeholder "Enter Qua"
- "Submit" button

Figure 3.4.3.4 Dispatch stocks portal

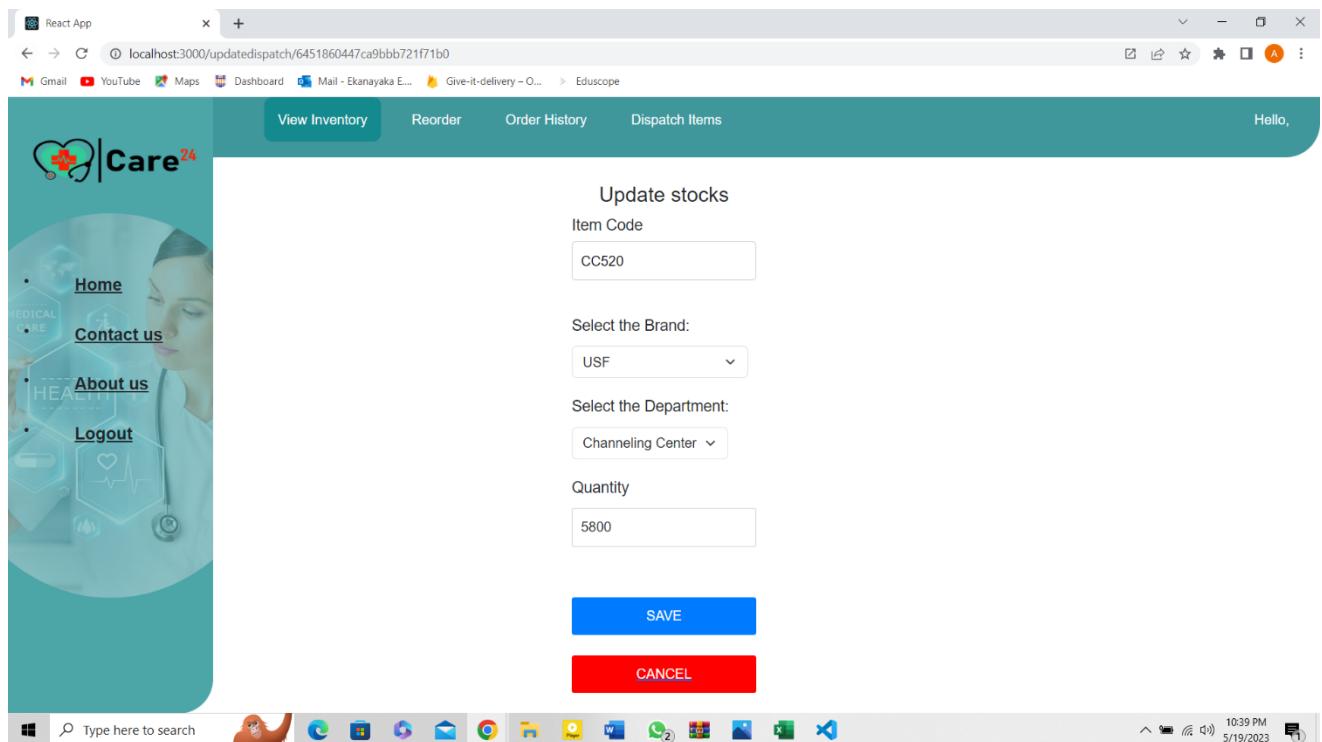


Figure 3.4.3.5 Stocks Update portal.

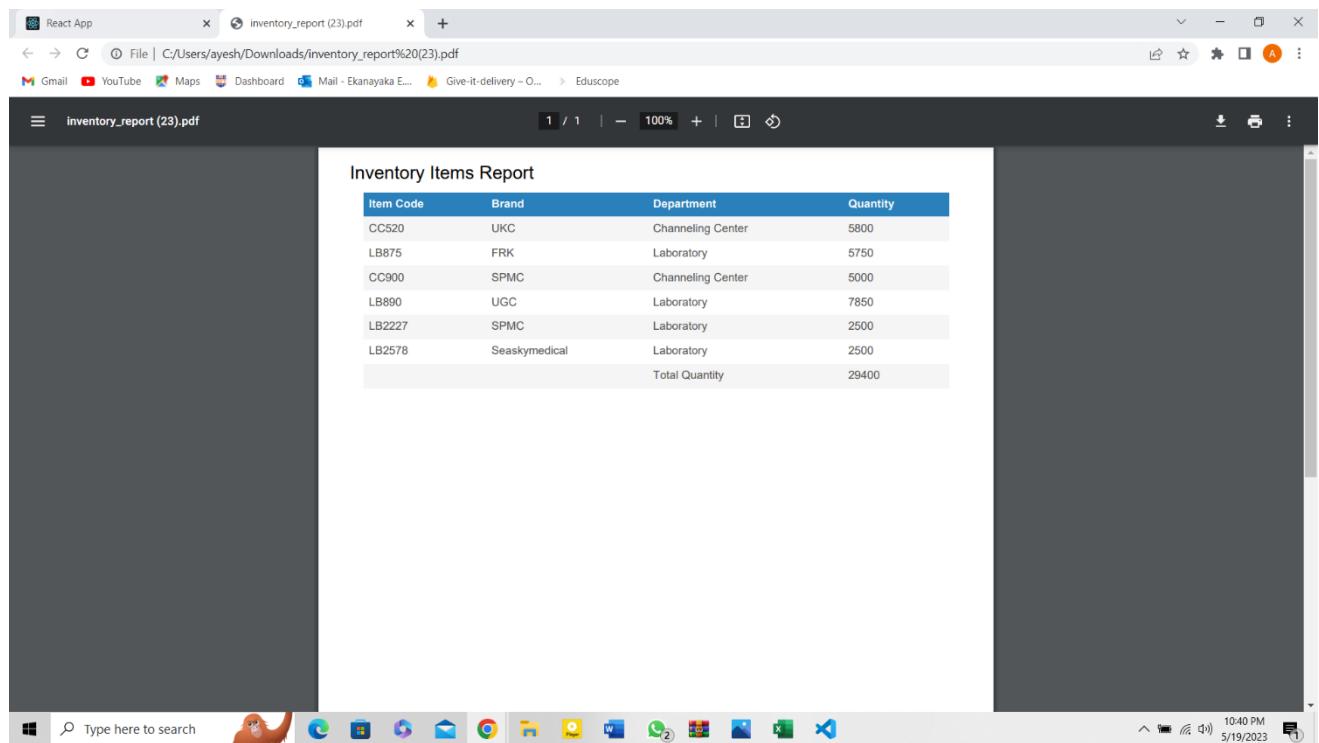


Figure 3.4.3.6 Inventory Report

The screenshot shows a Microsoft Edge browser window with four tabs open:

- React App
- report (20).pdf
- report (19).pdf
- inventory_report (23).pdf

The second tab, "report (20).pdf", displays a table titled "report (20)". The table has the following data:

Item Code	Quantity	Brand Name	Required Date
CC5020	2540	USF	2023-05-16
LB258	2500	USF	2023-05-16
CC5020	2500	SPMC	2023-05-17
CC5020	2500	USF	2023-05-17
CC5820	2500	USF	2023-05-17
CC5020	2500	USF	2023-05-17
CC5810	2500	USF	2023-05-17
CC5814	5300	CHICARGO-3	2023-05-18
CC5885	8300	USF	2023-05-17

The browser's taskbar at the bottom shows various pinned and open application icons, including Gmail, YouTube, Maps, Dashboard, Mail - Ekanayaka E..., Give-it-delivery - O..., Eduscope, and others.

Figure 3.4.3.7 Reorder History report

3.4.4.Medicine Delivery Management

The screenshot shows the 'Medicine Requests' page of the Care-24 portal. The header includes the Care-24 logo, a navigation bar with 'Dashboard', 'Medicine Requests', and 'Hello Hashan!', and a sidebar with 'Home', 'Dashboard', 'Settings', 'Profile', and 'Logout'.

The main content area features a welcome message: Welcome to the Online Medicine Delivery Service Portal!. It contains fields for Name (with placeholder 'BBBB'), Age (empty), Gender (radio buttons for Male and Female), Delivery Address (empty), select your city (dropdown menu), Phone (empty), Prescription Details (empty), and Prescription File (input field with 'Choose file' and 'No file chosen' options). A checkbox for agreeing to the Privacy Policy and Terms & Conditions is checked, and a 'Submit' button is present. To the right, there is a promotional image of a person standing next to a prescription bottle and medical icons, with the text: 'Get your medications delivered right to your doorstep hassle-free with our easy-to-use Medicine Delivery Service.' and 'Place your order now and experience the convenience! Once your request is submitted, it will be reviewed by our qualified staff.'

Figure 3.4.4.1 Medicine Delivery Request Form

The screenshot shows the 'Medicine Delivery Requests' page of the Care-24 portal. The header includes the Care-24 logo, a navigation bar with 'Dashboard', 'Medicine Requests', and 'Hello Hashan!', and a sidebar with 'Home', 'Dashboard', 'Settings', 'Profile', and 'Logout'.

The main content area displays a table of medicine delivery requests:

Action needed	Order ID	Date	Medicines Information	Prescription	Bill Amount (LKR)	PAY	CANCEL
Action needed	6467a1231284cff0c5f610af	2023-05-19	N/A	Download	1000	PAY	CANCEL
Action needed	6467a1451284cff0c5f610b3	2023-05-19	Ibuprofen 400mg, take one tablet every 6 hours for pain relief Amoxicillin 500mg, take one tablet three times daily for 7 days	N/A	1300	PAY	CANCEL

Below this is a 'Track Status' section with a table:

#	Order ID	Date & Time	Payment Info	Status
1	645fea4107fa0bb5350bb0f5	2023-05-13T19:51	Payment Successful	Paid
2	645fef0d75ea76d4af24fd1e6	2023-05-13T20:15	Payment Successful	Delivery in Progress
3	6461196b7b9af8010047695e	2023-05-14T17:23	Payment Successful	Delivery in Progress
4	646119c07b9af80100476978	2023-05-14T17:25	Payment Successful	Delivery in Progress
5	646148ee7b9af80100476b77	2023-05-14T20:46	N/A	Rejected
6	6461c7f16dfa25c2df82174a	2023-05-15T05:49	Payment Successful	Completed
7	6461e1c08db7b783dcc1044	2023-05-15T07:39	Payment Successful	Paid
8	6461e1e98db7b783dcc104e	2023-05-15T07:40	Payment Successful	Delivery in Progress
9	6467a1231284cff0c5f610af	2023-05-19T16:17	Payment Required	Approved
10	6467a1451284cff0c5f610b3	2023-05-19T16:17	Payment Required	Approved

Figure 3.4.4.2 Medicine Delivery Requests of Patient

Order ID	Name	Age	Gender	Address	Phone	Prescription Details	
1	Madhuwantha	20	Male	No.28, Gemunupura 1st Lane, New Kandy Road	771243567		Download Approve Reject Delete
2	Hashan	19	Male	1st Lane, Gemunupura Mawata, Kothalawala	771243567	Ibuprofen 400mg, take one tablet every 6 hours for pain relief Amoxicillin 500mg, take one tablet three times daily for 7 days No file available.	Approve Reject Delete

A Summary of Medicine Delivery Requests Statuses

Status	Total Amount
Pending	~2
Rejected	~1
Cancelled	~0
In Review	~1
Approved	~1
Paid	~2
Delivery in Progress	~4
Completed	~1

Figure 3.4.4.5 Pharmacist's Main Dashboard

Order ID	Customer Name	User ID	Prescription Details	Address	Total Cost (Rs.)
1	Hashan	645fd9f74f36374567a9e0de	Testing Prescription	1st Lane, Gemunupura Mawata, Kothalawala	Download Submit
2	Madhuwantha	645fe37a997fe03b17f415ab		No.28, Gemunupura 1st Lane, New Kandy Road	Download Submit
3	Hashan	645fe37a997fe03b17f415ab	Ibuprofen 400mg, take one tablet every 6 hours for pain relief Amoxicillin 500mg, take one tablet three times daily for 7 days	1st Lane, Gemunupura Mawata, Kothalawala	Download Submit

Figure 3.4.4.6 Medicine Delivery Requests' Billing Page for Pharmacist

Dashboard Medicine Requests Hello... 

Medicine Requests Statuses

Search (Name/Order ID)

New Orders in Progress

Order ID	User Name	User ID	Address	Cost (Rs.)	Current Status	New Status
1 644e0851e3f5e863583c4aff	Emma		1st Lane, Gemunupura Mawata, Kothalawala		Pending	<input type="button" value="UPDATE"/>
2 644e08fe3f5e863583c4b05	Hashan		No.28, Dharmapala MW, Matara.		In Review	<input type="button" value="UPDATE"/>
3 644e0a17e3f5e863583c4b11	Hashan		No.28, Dharmapala MW, Matara.	780	Approved	<input type="button" value="UPDATE"/>
4 644e0b89e3f5e863583c4b33	Hashan		No.28, Dharmapala MW	475	Approved	<input type="button" value="UPDATE"/>
5 644e0f46e3f5e863583c4b7c	Luna		No.28, Dharmapala MW, Hokandara		Pending	<input type="button" value="UPDATE"/>
6 644f51fc81b5ee86ae469309	John John		No.28, Dharmapala MW, Matara.		In Review	<input type="button" value="UPDATE"/>
7 644f52e681b5ee86ae469311	Care24		No.28, Dharmapala MW		In Review	<input type="button" value="UPDATE"/>
8 644f54fa81b5ee86ae46934b	Hashan		No.28, Gemunupura 1st Lane, New Kandy Road		Pending	<input type="button" value="UPDATE"/>
9 64513dacc2f1bc5bfdefa	John John		No.30, Dharmapala MW, Battaramulla		Pending	<input type="button" value="UPDATE"/>

Other Medicine Delivery Requests in Processing

Order ID	User Name	User ID	Address	Cost (Rs.)	Prescription Details	Prescription	Deliverer	Status
1 644cf142c16f51f260075df0	Hashan		1st Lane, Gemunupura Mawata, Kothalawala	500	Loratadine 10mg, Vitamin C 500mg, Aspirin 81mg		N/A	Paid
2 644e09a0e3f5e863583c4b09	Hashan		No.28, Dharmapala MW	990		<input type="button" value="Download"/>	N/A	Paid
3 644e0fc5e3f5e863583c4b8a	Hashan		No.28, Dharmapala MW, Hokandara	1000	Diphenhydramine 25mg, Aspirin 81mg, Magnesium oxide 400mg		Deliverer 01	Delivery in Progress
4 644f534581b5ee86ae46931b	Hashan		No.28, New Kandy Road, Malabe	999		<input type="button" value="Download"/>	Deliverer 01	Delivery in Progress
5 644f542881b5ee86ae469337	Hashan		No.28, New Kandy Road	680	Ibuprofen 400mg, Amoxicillin 500mg, Vitamin C 500mg		N/A	Paid

Previously Received Medicine Delivery Requests

Order ID	User Name	User ID	Address	Cost (Rs.)	Prescription Details	Prescription	Deliverer	Status
1 644cf432c16f51f260075e1c	Lunafreya		1st Lane, Gemunupura Mawata, Kothalawala		Acetaminophen 500mg, Ibuprofen 200mg, Loratadine 10mg		N/A	Rejected
2 644cf482c16f51f260075e20	Hashan		1st Lane, Gemunupura Mawata, Kothalawala	750		<input type="button" value="Download"/>	N/A	Cancelled

Figure 3.4.4.7 Medicine Delivery Requests' Statuses for Pharmacist

Delivery Assignment

Order ID	Customer Name	User ID	Address	Cost (Rs.)	Delivery Person
1 07fa0bb5350bb0f5	Hashan	645fe37a997fe03b17f415ab	No.28, Dharmapala MW, Matara.	789	Deliverer 01 <input type="button" value="Assign"/>
2 8db7b783dccc1044	Hashan	645fe37a997fe03b17f415ab	No.28, Dharmapala MW, Matara.	946	<input type="button" value="Assign"/>
3 1284cff8c5f610af	Madhuwantha	675fe37a997fe03b17f415he	No.28, Gemunupura 1st Lane, New Kandy Road	1000	<input type="button" value="Assign"/>
4 1284cff8c5f610b3	Hashan	645fe37a997fe03b17f415ab	1st Lane, Gemunupura Mawata, Kothalawala	1300	<input type="button" value="Assign"/>

Figure 68 Pharmacist's Page to Assign a Delivery Person for each Order.

Delivery Tasks Assigned by the Pharmacist

Order ID	Customer Name	Address	Phone	Total Cost (Rs.)	Delivery Status	New Status	
1 7b9af8010047695e	Hashan	No.28, Dharmapala MW, Matara.	771243567	200	Delivery in Progress	Package Dispatched <input type="button" value="Submit"/>	<input type="button" value="Cancel"/>
2 7b9af80100476978	Hashan	No.28, New Kandy Road, Malabe	771243567	125	Delivery in Progress	Delivering <input type="button" value="Submit"/>	<input type="button" value="Cancel"/>
3 8db7b783dccc104e	Madhuwantha	No.28, Dharmapala MW, Matara.	771243567	75	Delivery in Progress	Completed <input type="button" value="Submit"/>	<input type="button" value="Cancel"/>

Recent Deliveries

Order ID	Customer Name	Address	Phone	Total Cost (Rs.)	Delivery Code	Delivery Status
1 7b9af8010047695e	Hashan	No.28, Dharmapala MW, Matara.	771243567	200	6461dd979bb227ad8190cea	Delivery in Progress
2 7b9af80100476978	Hashan	No.28, New Kandy Road, Malabe	771243567	125	6461dd9a9bb227ad8190ced	Delivery in Progress
3 8db7b783dccc104e	Madhuwantha	No.28, Dharmapala MW, Matara.	771243567	75	6461e2088db7b783dccc1061	Delivery in Progress

Figure 3.4.4.9 Delivery Person's Dashboard

3.4.5. Test Result Management

Appointment ID:

Sample ID:

Patient Name:

Patient Address:

Patient Age:

Contact Number:

Figure 3.4.5.1 Add New Sample Form

	Appointment ID	Sample ID	Patient Name	Patient Address	Patient Age	Contact Number	Sample Type	Test Name			
1	001	S0016	Malank	No:2, Nawa kadavidiya, Tangalle.	28	713382448	Urine	Urine Test	<button>Update</button>	<button>Add Results</button>	<button>View Results</button>
2	005	S002	Vishak	17/1,beliaththa road,Tangalle	55	712345672	Urine	Urine Test	<button>Update</button>	<button>Add Results</button>	<button>View Results</button>
3	030	S003	Ayeshffgge	17/8,New Kandy road,Kaduwela	67	772345672	Blood	Full Blood Count	<button>Update</button>	<button>Add Results</button>	<button>View Results</button>
4	345	rgrgrrg	ssscsc	No:2, Nawa kadavidiya, Tangalle.	34	940713382	Blood	Urine Test	<button>Update</button>	<button>Add Results</button>	<button>View Results</button>

Figure 3.4.5.2 Sample List

localhost:3000/addsample/edit/6451c832b22fa34136112e68

Add New Sample Sample List Hello,

- Dashboard
- Appointment
- Patients
- Test
- Logout

Update Sample Details

Sample Id	S0016
Name	Malank
Age	28
Phone	713382448
Sample Type	Urine

Figure 3.4.5.3 Update Sample Form

localhost:3000/test/edit/6451c832b22fa34136112e68

Add New Sample Sample List Hello,

- Dashboard
- Appointment
- Patients
- Test
- Logout

Add Test Results

Test	Result	Unit	Ref.val
Red Blood Cell Count	5	mg/dL	4-11
Haemoglobin	3	10 ¹² /L	20%-50%
Neutrophils	3	mmol/L	13.0-17.0

Submit

Figure 3.4.5.4 Add Test Result

The screenshot shows a web application interface. On the left, there is a sidebar with a teal background containing a navigation menu:

- Dashboard
- Appointment
- Patients
- Test
- Logout

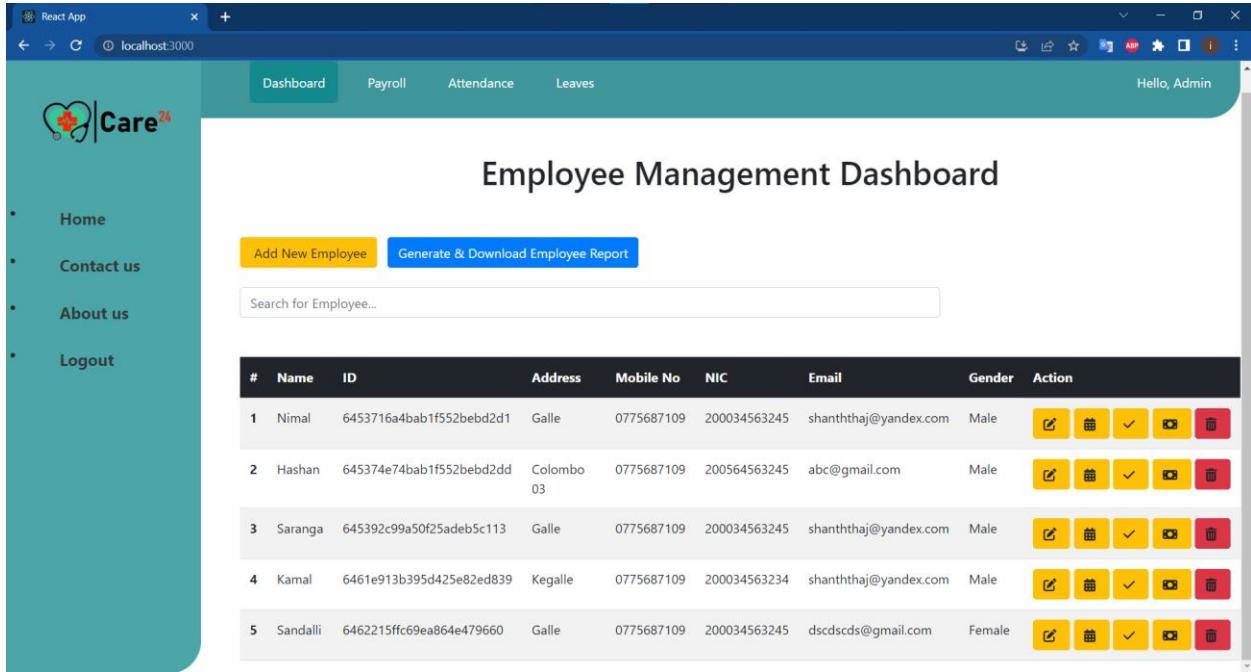
On the right, the main content area has a header with two buttons: "Add New Sample" and "Sample List". The "Sample List" button is highlighted with a blue background. Below the header, the title "View Test Result" is displayed in a large, bold font. Underneath the title is a table showing test results:

Test	Result	Unit	Ref.val
Red Blood Cell Count	e	2	3
Haemoglobin	3	10^12/L	20%-50%
Neutrophils	3	mmol/L	13.0-17.0

At the bottom of the content area is a blue button labeled "Print as PDF". The top of the screen shows a browser toolbar with various icons and a URL bar indicating the page is at `localhost:3000/viewdata/6451c832b22fa34136112e68`. The bottom of the screen shows a Windows taskbar with several pinned icons and a system tray with a battery icon, the time "23:20", and the date "19-15-2023".

Figure 3.4.5.5 View Test Result

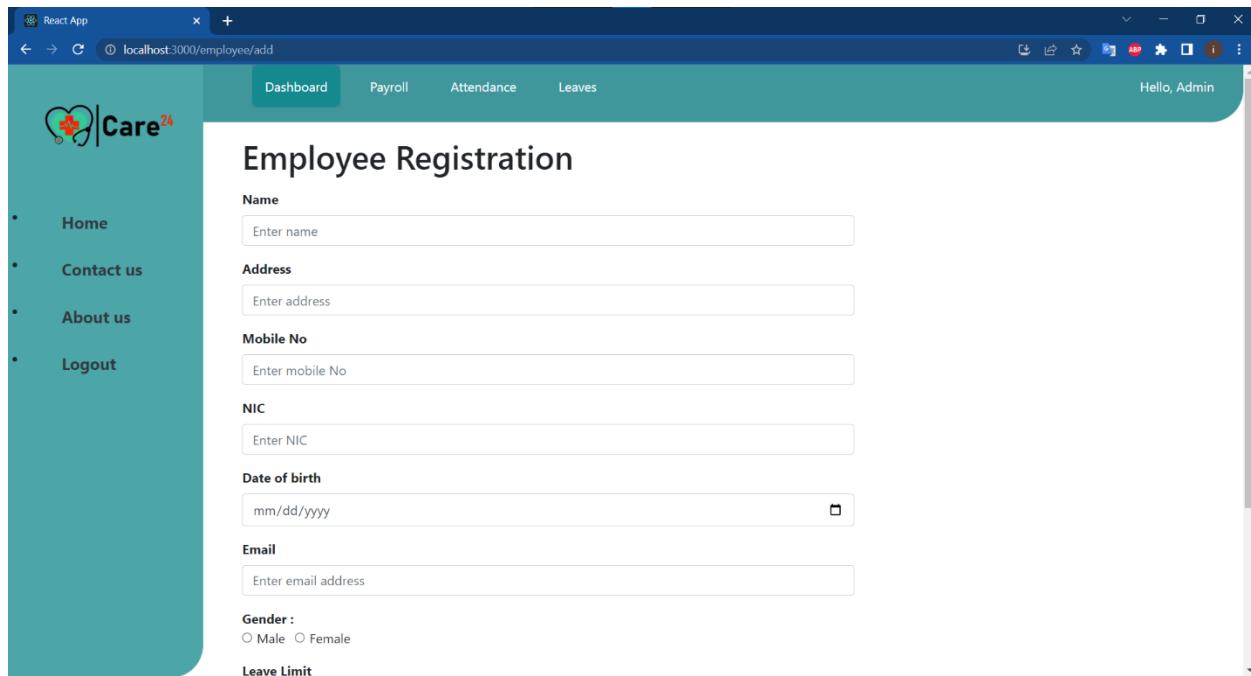
3.4.6.Employee Management



The screenshot shows the Employee Management Dashboard. At the top, there's a navigation bar with tabs for Dashboard, Payroll, Attendance, and Leaves. A greeting 'Hello, Admin' is on the right. On the left, a sidebar menu includes Home, Contact us, About us, and Logout. The main area has buttons for 'Add New Employee' and 'Generate & Download Employee Report'. Below is a search bar and a table listing employees:

#	Name	ID	Address	Mobile No	NIC	Email	Gender	Action
1	Nimal	6453716a4bab1f552bebd2d1	Galle	0775687109	200034563245	shanththaj@yandex.com	Male	[Edit, Delete, Checkmark, Print, Unprint]
2	Hashan	645374e74bab1f552bebd2dd	Colombo 03	0775687109	200564563245	abc@gmail.com	Male	[Edit, Delete, Checkmark, Print, Unprint]
3	Saranga	645392c99a50f25adeb5c113	Galle	0775687109	200034563245	shanththaj@yandex.com	Male	[Edit, Delete, Checkmark, Print, Unprint]
4	Kamal	6461e913b395d425e82ed839	Kegalle	0775687109	200034563234	shanththaj@yandex.com	Male	[Edit, Delete, Checkmark, Print, Unprint]
5	Sandalli	6462215ffc69ea864e479660	Galle	0775687109	200034563245	dscdscds@gmail.com	Female	[Edit, Delete, Checkmark, Print, Unprint]

Figure 3.4.6.1 View all employee-on-Employee Management Dashboard



The screenshot shows the Employee Registration page. The URL in the address bar is 'localhost:3000/employee/add'. The page has a similar header and sidebar as the dashboard. The main content is titled 'Employee Registration' and contains fields for Name, Address, Mobile No, NIC, Date of birth, Email, Gender (Male/Female), and Leave Limit. There are also 'Enter' and 'Clear' buttons for each field.

Figure 3.4.6.2 Add employee to the system.

The screenshot shows a web application interface for adding a new employee. The header includes tabs for Dashboard, Payroll, Attendance, and Leaves, with Dashboard selected. A greeting 'Hello, Admin' is in the top right. On the left, a sidebar menu lists Home, Contact us, About us, and Logout. The main content area has fields for NIC (with placeholder 'Enter NIC'), Date of birth (placeholder 'mm/dd/yyyy'), Email (placeholder 'Enter email address'), Gender (radio buttons for Male and Female, Male is selected), Leave Limit (placeholder 'Enter Leave Limit'), Password (placeholder 'Enter Password'), and Confirm Password (placeholder 'Enter Password'). A blue 'Add' button is at the bottom.

Figure 3.4.6.3 Add employee to the system.

The screenshot shows a web application interface for updating an existing employee. The header includes tabs for Dashboard, Payroll, Attendance, and Leaves, with Dashboard selected. A greeting 'Hello, Admin' is in the top right. On the left, a sidebar menu lists Home, Contact us, About us, and Logout. The main content area has fields for Name (Nimal), Address (Galle), Mobile No (0775687109), NIC (200034563245), Date of birth (2023-05-25), Email (shanththaj@yandex.com), and Gender (Male). A 'Leave Limit' field is also present. The title 'Update Employee' is centered above the form.

Figure 3.4.6.4 Update employee already added to the system.

The screenshot shows a web-based application interface for managing employees. On the left, there's a sidebar with navigation links: Home, Contact us, About us, and Logout. The main content area has tabs for Dashboard, Payroll, Attendance, and Leaves, with 'Dashboard' currently selected. A sub-header 'Hello, Admin' is visible. The form itself contains the following fields:

- Name:** Nimal
- Address:** Galle
- Mobile No:** 0775687109
- NIC:** 200034563245
- Date of birth:** 2023-05-25
- Email:** shanththaj@yandex.com
- Gender:** Male
- Leave Limit:** 4

An 'Update' button is located at the bottom of the form.

Figure 3.4.6.5 Update employee already added to the system.

The screenshot shows a PDF document titled "Employee_report (1).pdf". The document contains a table titled "Employee Report" with the following data:

Index	ID	Employee Name	Address	Mobile No	Email
1	6453716a4bab1f552beb2d1	Nimal	Galle	0775687109	shanththaj@yandex.com
2	645374e74bab1f552beb2dd	Hashan	Colombo 03	0775687109	abc@gmail.com
3	645392c99a50f25adeb5c113	Saranga	Galle	0775687109	shanththaj@yandex.com
4	6461e913b395d425e82ed839	Kamal	Kegalle	0775687109	shanththaj@yandex.com
5	6462215fffc69ea864e479660	Sandalli	Galle	0775687109	dscdscds@gmail.com

Figure 3.4.6.6 Generated Employee report by using the details in the system.

The screenshot shows a web-based payroll system interface. At the top, there's a navigation bar with tabs: Dashboard, Payroll (which is active), Attendance, and Leaves. A greeting "Hello, Admin" is on the right. On the left, a sidebar menu includes Home, Contact us, About us, and Logout. The main content area has a title "Payroll System". Below it are two buttons: "Add New Payroll" (yellow) and "Generate & Download Salary Report" (blue). A table lists four employees with columns: #, ID, Name, Salary, Casual Leaves, Medical Leaves, Bonus, Tax(%), and Action. Each row has edit and delete icons in the Action column.

#	ID	Name	Salary	Casual Leaves	Medical Leaves	Bonus	Tax(%)	Action
1	645374e74bab1f552bebd2dd	sadesad	10000	5	5	12	7	
2	645374e74bab1f552bebd2dd	sadesad	10000	5	5	12	7	
3	645374e74bab1f552bebd2dd	sadesad	10000	5	5	12	7	
4	6453716a4bab1f552bebd2d1	htrgdg	10000	4	4	12000	7	

Figure 3.4.6.7 Payroll Dashboard

The screenshot shows the "Add Payroll" form. The URL in the address bar is `localhost:3000/payroll/add/get/6453716a4bab1f552bebd2d1`. The form fields include:

- ID: 6453716a4bab1f552bebd2d1
- Name: Nimal
- Salary: Type here...
- Casual Leave: Type here...
- Medical Leave: Type here...
- Bonus: Type here...
- Tax(%): Type here...

Figure 3.4.6.8 Add payroll.

React App x React App x +

localhost:3000/payroll/add/get/6453716a4bab1f552bebd2d1

Hello, Admin

Dashboard Payroll Attendance Leaves

ID
6453716a4bab1f552bebd2d1

Name
Nimal

Salary
Type here...

Casual Leave
Type here...

Medical Leave
Type here...

Bonus
Type here...

Tax(%)
Type here...

Submit

Figure 3.4.6.9 Add Payroll

React App x React App x +

localhost:3000/payroll/get/64537a4d4bab1f552bebd325

Hello, Admin

Dashboard Payroll Attendance Leaves

Update Payroll

Name
sadesad

Address
10000

Mobile No
5

Date of birth
5

Email
12

Leave Limit
7

Update

Figure 3.4.6.10 Update Payroll in added in the system.

The screenshot shows the 'Attendance' tab selected in the navigation bar. A note at the top says 'Please initialize the attendace system at begining of the day!!!' with a yellow 'Initialize' button. Below it is a 'Clock In' section with a date selector set to '2023-05-19' and buttons for 'Today' and 'Show All'. A table lists four entries:

#	ID	Name	Status	Date	Time In	Action
1	6453716a4bab1f552bebd2d1	Nimal	Present	2023-05-19	08:38	
2	645374e74bab1f552bebd2dd	Hashan	Absent	2023-05-19	-	
3	645392c99a50f25adeb5c113	Saranga	Present	2023-05-19	08:45	
4	6461e913b395d425e82ed839	Kamal	Present	2023-05-19	08:30	

Figure 3.4.6.11 Attendance Tracker

The screenshot shows the 'Attendance' tab selected in the navigation bar. A table lists two entries:

4	6461e913b395d425e82ed839	Kamal	Present	2023-05-19	08:30	
5	6462215ffc69ea864e479660	Sandalli	Absent	2023-05-19	-	

Below the table is a 'Clock Out' section with a table listing five entries:

#	ID	Name	Status	Date	Time Out	Action
1	6453716a4bab1f552bebd2d1	Nimal	Present	2023-05-19	16:30	
2	645374e74bab1f552bebd2dd	Hashan	Absent	2023-05-19	-	
3	645392c99a50f25adeb5c113	Saranga	Present	2023-05-19	16:40	
4	6461e913b395d425e82ed839	Kamal	Present	2023-05-19	16:25	
5	6462215ffc69ea864e479660	Sandalli	Absent	2023-05-19	-	

Figure 3.4.6.12 Attendance Tracker

The screenshot shows a web application interface for managing employee attendance. The top navigation bar includes links for Dashboard, Payroll, Attendance (which is the active tab), and Leaves. A sidebar on the left provides links to Home, Contact us, About us, and Logout. The main content area is titled "Clock Out" and displays a table of attendance records:

#	ID	Name	Status	Date	Time Out	Action
1	6453716a4bab1f552bebd2d1	Nimal	Present	2023-05-19	16:30	
2	645374e74bab1f552bebd2dd	Hashan	Absent	2023-05-19	-	
3	645392c99a50f25adeb5c113	Saranga	Present	2023-05-19	16:40	
4	6461e913b395d425e82ed839	Kamal	Present	2023-05-19	16:25	
5	6462215ffc69ea864e479660	Sandalli	Absent	2023-05-19	-	

Below the table, a note states: "* Is there any issue with automated attendance tracking, You can use this for add attendance manually" and a yellow button labeled "Add New Attendance Manually".

Figure 3.4.6.13 Attendance Tracker

The screenshot shows a web application interface for managing leave requests. The top navigation bar includes links for Dashboard, Payroll, Attendance, and Leaves (which is the active tab). A sidebar on the left provides links to Home, Contact us, About us, and Logout. The main content area is titled "Received Leave Requests" and displays a table of leave records:

#	ID	Date	Type	Remarks	Status	Action
1	645374e74bab1f552bebd2dd	2023-05-15	Medical	Medical Issue	Approved	Action taken
2	6453716a4bab1f552bebd2d1	2023-05-19	Medical	Medical Issue	Approved	Action taken
3	6453716a4bab1f552bebd2d1	2023-05-19	Medical	erferf	Rejected	Action taken
4	645392c99a50f25adeb5c113	2023-05-27	Medical	Medical Issue	Under Review	
5	6462215ffc69ea864e479660	2023-05-24	Medical	Medical Issue	Under Review	

Below the table, a yellow button labeled "Add Leave Manually" is visible.

Figure 3.4.6.14 Leave Management

The screenshot shows the 'Employee Profile' page of a web application. The header includes tabs for Dashboard, Payroll, Attendance, and Leaves, with Leaves being the active tab. A 'Hello, Admin' greeting is visible on the right. The main content area displays the following employee details:

- Employee ID:** 6453716a4bab1f552bebd2d1
- Name:** Nimal
- Address:** Galle
- Mobile No:** 0775687109
- Date of birth:** 2023-05-25
- Email:** shanththaj@yandex.com

Figure 3.4.6.15 Employee Profile

The screenshot shows the 'Employee Profile' page with additional settings:

- Mobile No:** 0775687109
- Date of birth:** 2023-05-25
- Email:** shanththaj@yandex.com
- Gender:** Male
- Leave Limit:** 4
- Password:** (redacted)

Below these fields, there is a section titled 'Your QR Code :'. It includes a note: 'You can use this QR code to mark your attendance. please download and keep with you.' followed by a yellow horizontal bar.

Figure 3.4.6.16 Employee Profile

The screenshot shows a web application interface for an employee profile. At the top, there are three tabs labeled 'React App'. The main browser window displays the URL localhost:3000/employee/view/6453716a4bab1f552bebd2d1. The header includes a logo with a heart and cross, the text 'Care24', and a 'Hello, Admin' greeting. The navigation bar has tabs for 'Dashboard', 'Payroll', 'Attendance', and 'Leaves', with 'Leaves' being the active tab. On the left, a sidebar menu lists 'Home', 'Contact us', 'About us', and 'Logout'. The main content area starts with a section titled 'Your QR Code :'. It contains a message: 'You can use this QR code to mark your attendance. please download and keep with you.', a 'Download QR' button, and a large QR code. Below this is a section titled 'Attendance Records' containing a table with the following data:

#	ID	Name	Status	Time In	Time Out
1	6453716a4bab1f552bebd2d1	htrgdg	Present	09:43	09:53
2	6453716a4bab1f552bebd2d1	htrgdg	Present	09:51	09:59
3	6453716a4bab1f552bebd2d1	Nimal	Present	08:38	16:30

Figure 3.4.6.17 Employee Profile

This screenshot shows the same web application interface as Figure 3.4.6.17, but with a different set of data in the tables. The 'Attendance Records' table now shows the following data:

#	ID	Name	Status	Time In	Time Out
1	6453716a4bab1f552bebd2d1	htrgdg	Present	09:43	09:53
2	6453716a4bab1f552bebd2d1	htrgdg	Present	09:51	09:59
3	6453716a4bab1f552bebd2d1	Nimal	Present	08:38	16:30

Below the attendance table is a section titled 'My Leave Requests' containing a table with the following data:

#	ID	Date	Type	Remarks	Status
1	6453716a4bab1f552bebd2d1	2023-05-19	Medical	Medical Issue	Approved
2	6453716a4bab1f552bebd2d1	2023-05-19	Medical	erferf	Rejected

At the bottom of the page, there is a link labeled 'Make a Leave'.

Figure 3.4.6.18 Employee Profile

The screenshot shows a web application interface for managing employee leave requests. The top navigation bar includes tabs for Dashboard, Payroll, Attendance, Leaves (which is the active tab), and a user greeting 'Hello, Admin'. A sidebar on the left contains links for Home, Contact us, About us, and Logout. The main content area displays a table of previous leave requests and a form for creating a new one.

#	ID	Date	Type	Remarks	Status
1	6453716a4bab1f552bebd2d1	2023-05-19	Medical	Medical Issue	Approved
2	6453716a4bab1f552bebd2d1	2023-05-19	Medical	erferf	Rejected

Make a Leave

ID
6453716a4bab1f552bebd2d1

Date
mm/dd/yyyy

Type

Remarks
Type here...

Submit

Figure 719 Employee Profile

3.4.7.Billing & Invoice management

The screenshot shows a web browser window with the URL `localhost:3000/add`. The title bar says "Care 24 | Service Catalog". The left sidebar has a green background with icons for Home, Service Dashboard, Settings, Profile, and Logout. The main content area has a white background with a green header bar containing "Add New Item" and "Service Catalog" buttons, and a "Hello!" message. Below this is a form titled "ADD ITEM/SERVICE" with three input fields: "Service/Item Code" (placeholder "Enter Item Code"), "Description" (placeholder "Enter Description"), and "Price" (placeholder "Enter Price"). A yellow "Add Item" button is at the bottom.

Figure 3.4.7.1 Add Item Page

The screenshot shows a web browser window with the URL `localhost:3000`. The title bar says "Care 24 | Service Catalog". The left sidebar has a green background with icons for Home, Service Dashboard, Settings, Profile, and Logout. The main content area has a white background with a green header bar containing "Add New Item" and "Service Catalog" buttons, and a "Hello!" message. Below this is a table titled "SERVICE CATALOG" showing a list of service items:

Service/Item Code	Description	Price	Delete	Edit
000	General Health Panel	5000		
001	CT Scan	2500		
002	Blood Process	10000		
003	MRI	6000		
004	Cardiology	1800		
010	Med/Surg Supply	1500		

Figure 3.4.7.2 Service Catalog Page

The screenshot shows a web application interface for updating an item. At the top, there's a navigation bar with tabs for 'Add New Item' and 'Service Catalog'. On the far right of the bar, it says 'Hello !'. Below the bar, there's a sidebar on the left with links for 'Home', 'Service Dashboard', 'Settings', 'Profile', and 'Logout'. The main content area has a title 'UPDATE ITEM/SERVICE'. It contains three input fields: 'Service/Item Code' with value '004', 'Description' with value 'Cardiology', and 'Price' with value '1800'. At the bottom of this section is an orange 'Update Item' button.

Figure 3.4.7.3 Update Item Page

The screenshot shows a web application interface for creating an invoice. At the top, there's a navigation bar with tabs for 'Untitled Diagram.drawio - diagram', 'itpFinal.drawio - diagrams.net', and 'Invoicer | Create Invoices'. On the far right of the bar, it says 'Hello !'. Below the bar, there's a sidebar on the left with links for 'Home', 'Dashboard', 'Settings', 'Profile', and 'Logout'. The main content area has several input fields for customer information: 'Your name' (Kulana Thathsara), 'Your EID' (0008), 'Your email' (kulana@gmail.com), and 'Your phone Number' (1234567890). Below these, there are fields for 'Customer Name' (Kfgert Thagdre), 'Customer Address' (Galle), 'Customer Phone Number' (0987654321), and 'Customer Email' (Thagdre@gmail.com). At the bottom, there are fields for 'Invoice Number' (502624), 'Invoice Date' (05/19/2023), and a 'Description' field. A large orange 'save' button is located at the bottom left of the form area.

Figure 3.4.7.4 Invoice Form Page

The screenshot shows the 'Invoicer' application interface. On the left, a green sidebar menu includes 'Home', 'Dashboard', 'Settings', 'Profile', and 'Logout'. The main area has a green header 'Invoicer' and a 'Hello!' message. A 'save' button is at the top right. Below it is a 'Description' section with 'Blood Process'. A table shows a single entry: Service/Item Code 002, Price 10000, Quantity 3, and Amount 30000. A 'Service/Item +' button is below the table. Another table lists items: 000 (General Helth Panel, 5000, 1, 5000), 004 (Cardiology, 1800, 1, 1800). At the bottom, a large 'Rs. 6,800' is displayed, followed by a 'Preview Invoice' button.

Figure 3.4.7.5 Invoice Form Page

The screenshot shows the 'Invoicer' application interface. The left sidebar is identical to Figure 3.4.7.5. The main area features a logo for 'Care 24' and the word 'INVOICE' in large letters. It displays customer information: KFGERT THAGDRE, Galle, 0987654321, Thagdre@gmail.com, along with the invoice number 502624 and date 2023-05-19. A table lists three services: General Helth Panel (5000, 1, 5000), Cardiology (1800, 1, 1800), and Blood Process (10000, 3, 30000). A large 'Rs. 36,800' is shown at the bottom, followed by a 'Print/Download' button. Below the table, there is a note: 'Your name: Kulana Thathsara Email: kulana@gmail.com Phone: 1234567890'.

Figure 3.4.7.6 Invoice Preview Page

3.4.8.Compliance & Feedback Management

The screenshot shows the 'Contact' section of the Care app. On the left, there's a sidebar with icons for Home, Dashboard, Settings, Profile, and Logout. The main content area has a green header bar with 'Home', 'Medicine Delivery Service', 'Contact', 'My Feedbacks', 'Add Item', and 'Hello Vish'. Below this is a white form titled 'Send us a message'. It contains three input fields: 'Enter your name', 'Enter your email', and 'Enter your message'. To the left of the form, there are three sections with icons: 'Address' (location pin icon), 'Phone' (phone receiver icon), and 'Email' (envelope icon). The 'Address' section lists 'Surkhet, NP12 BirlaRanagar 05'. The 'Phone' section lists '+0098 9893 5647' and '+0096 3434 5678'. The 'Email' section lists 'codinglab@gmail.com' and 'info.codinglab@gmail.com'. A purple 'Submit' button is at the bottom right of the form.

Figure 3.4.8.1 Send us a message through contact us forum.

The screenshot shows the 'Rate Us' page of the Care app. The layout is similar to the previous contact page, with a sidebar and a green header bar. The main content area features a large, colorful illustration of two people interacting with a smartphone displaying a feedback interface. To the right of the illustration, there's a section titled 'Tell Us What You Think !' with various input fields and dropdown menus. These include 'Username' (text input 'Enter your username'), 'Does this app have useful notifications?' (dropdown 'Choose an option'), 'Does this app look bad visually?' (dropdown 'Choose an option'), 'Does the app description match the app experience?' (dropdown 'Choose an option'), 'Message' (text input 'Enter your message'), and 'Our Service' with radio buttons for 'Good', 'Better', and 'Excellent'. A blue 'Rate Us' button is at the bottom right.

Figure 3.4.8.2 Drop feedback using rate us page.

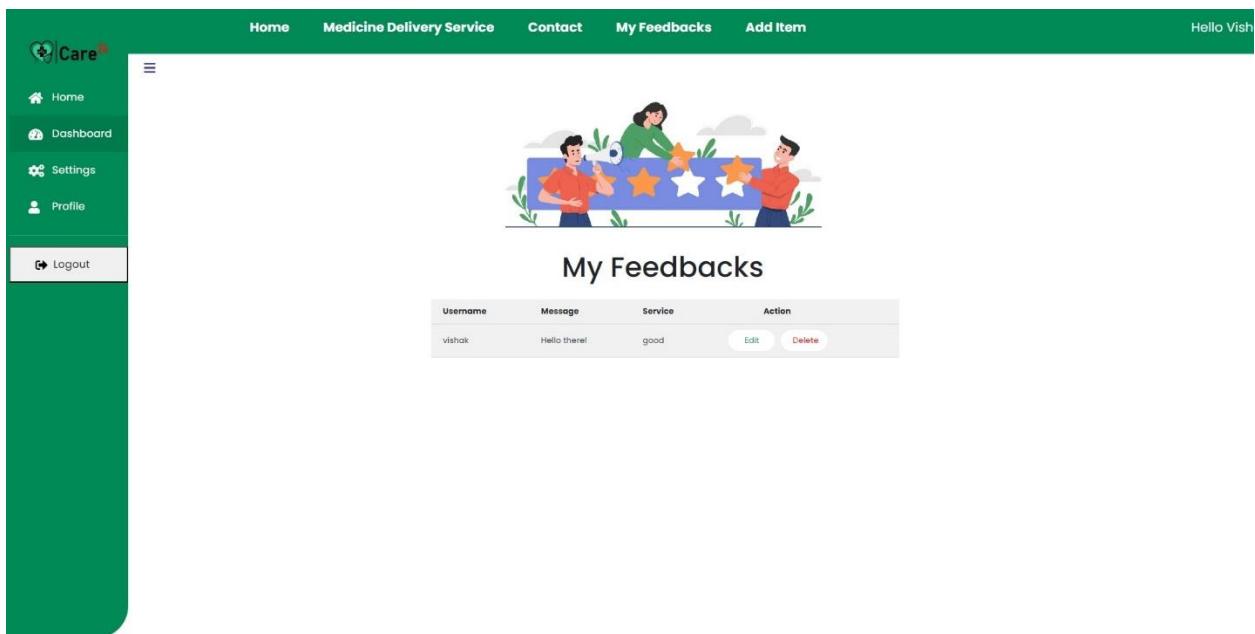


Figure 3.4.8.3 Edit Feedbacks in My Feedbacks page.

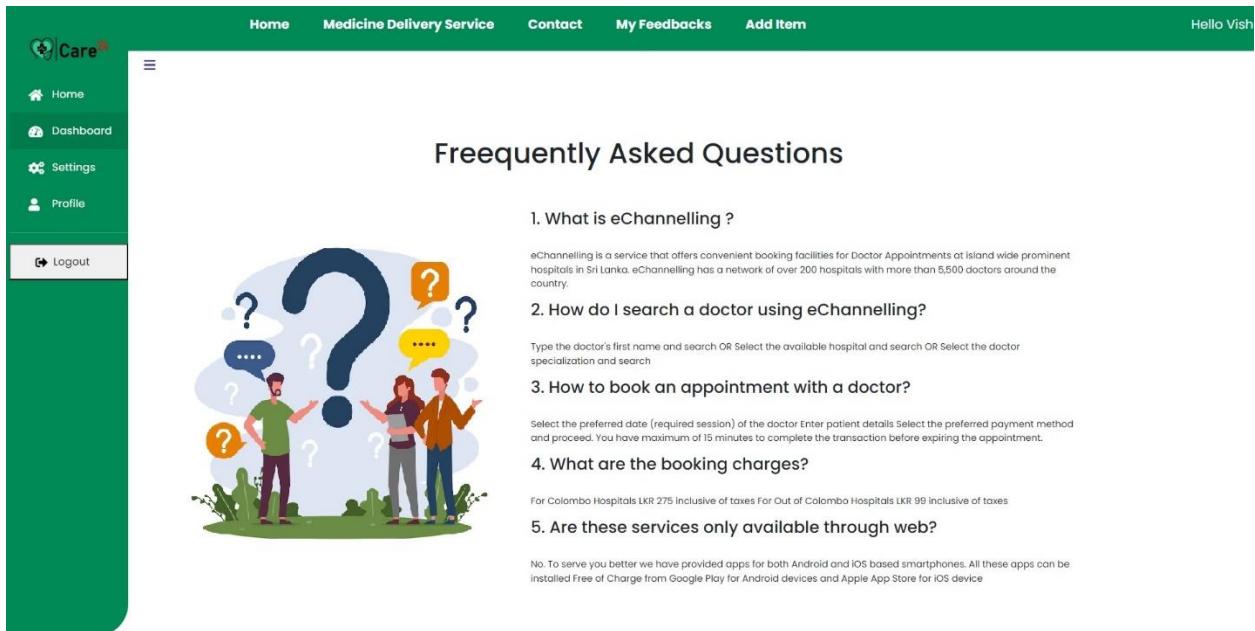


Figure 3.4.8.4 Users can find the solutions using FAQs.

3.5. Activity diagrams of each Function

3.5.1. User Management

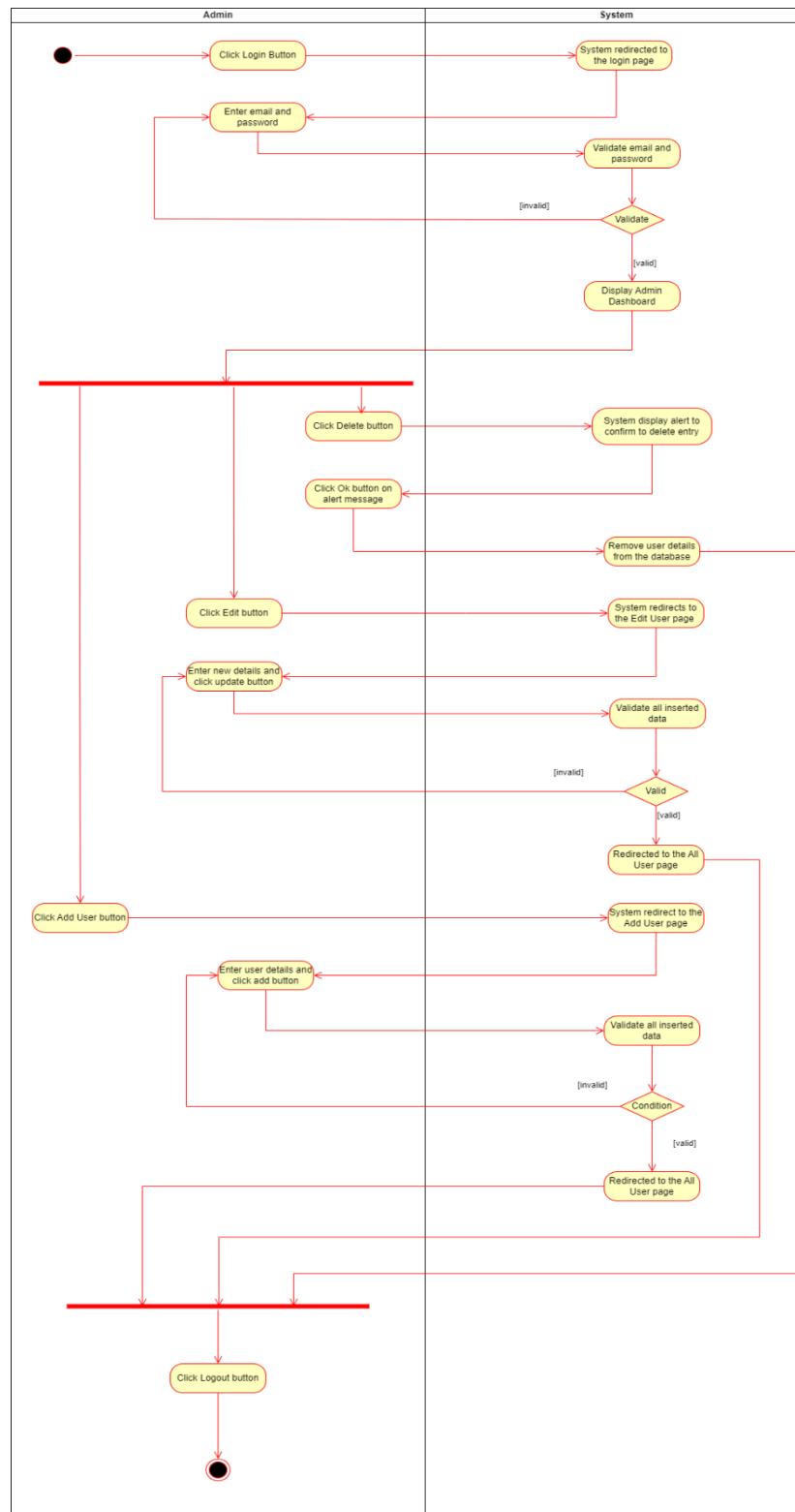


Figure 3.5.1 Activity Diagram User Management

3.5.2.Appointment Management

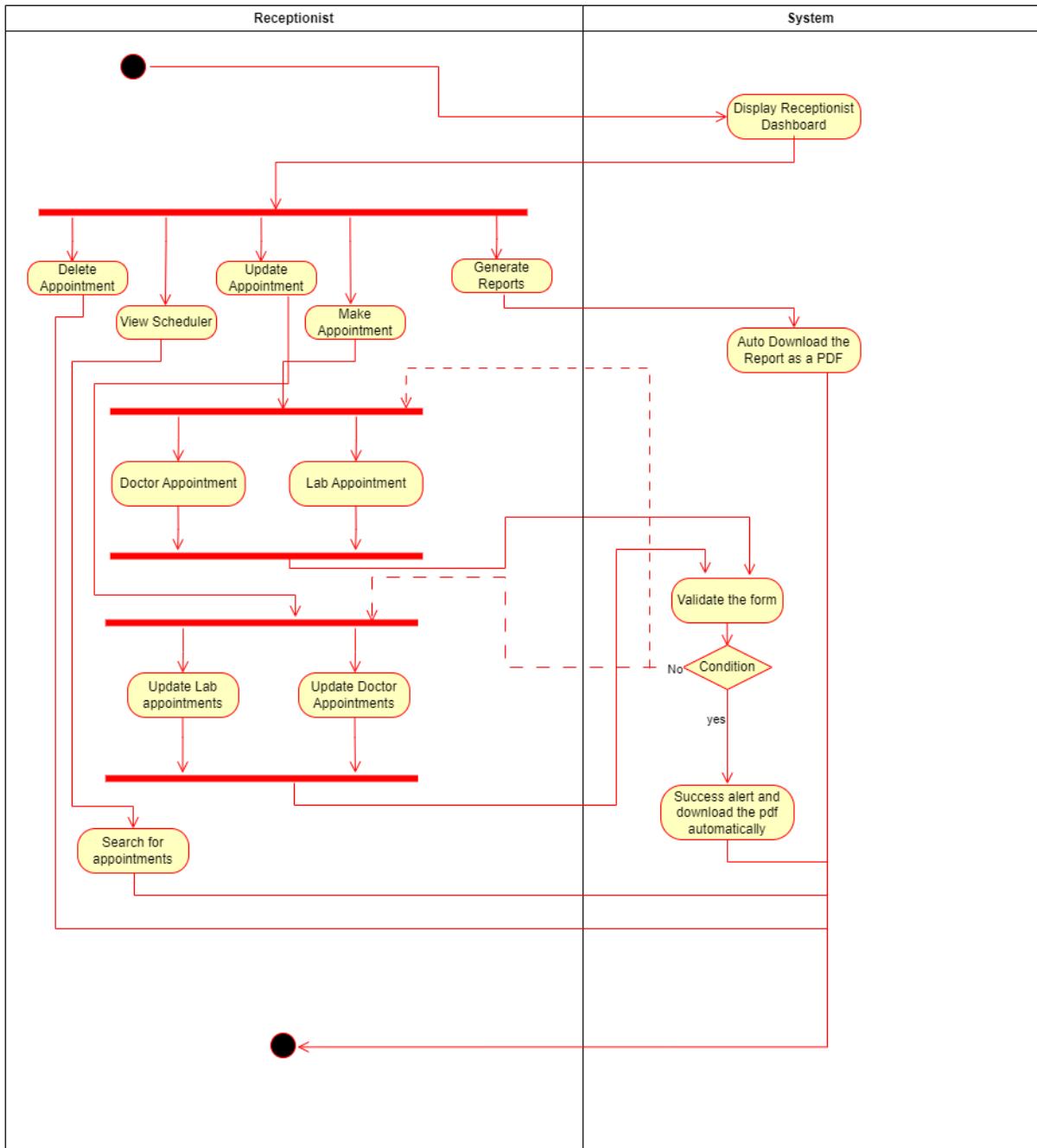


Figure 3.5.2 Activity Diagram Appointment Management

3.5.3.Inventory Management

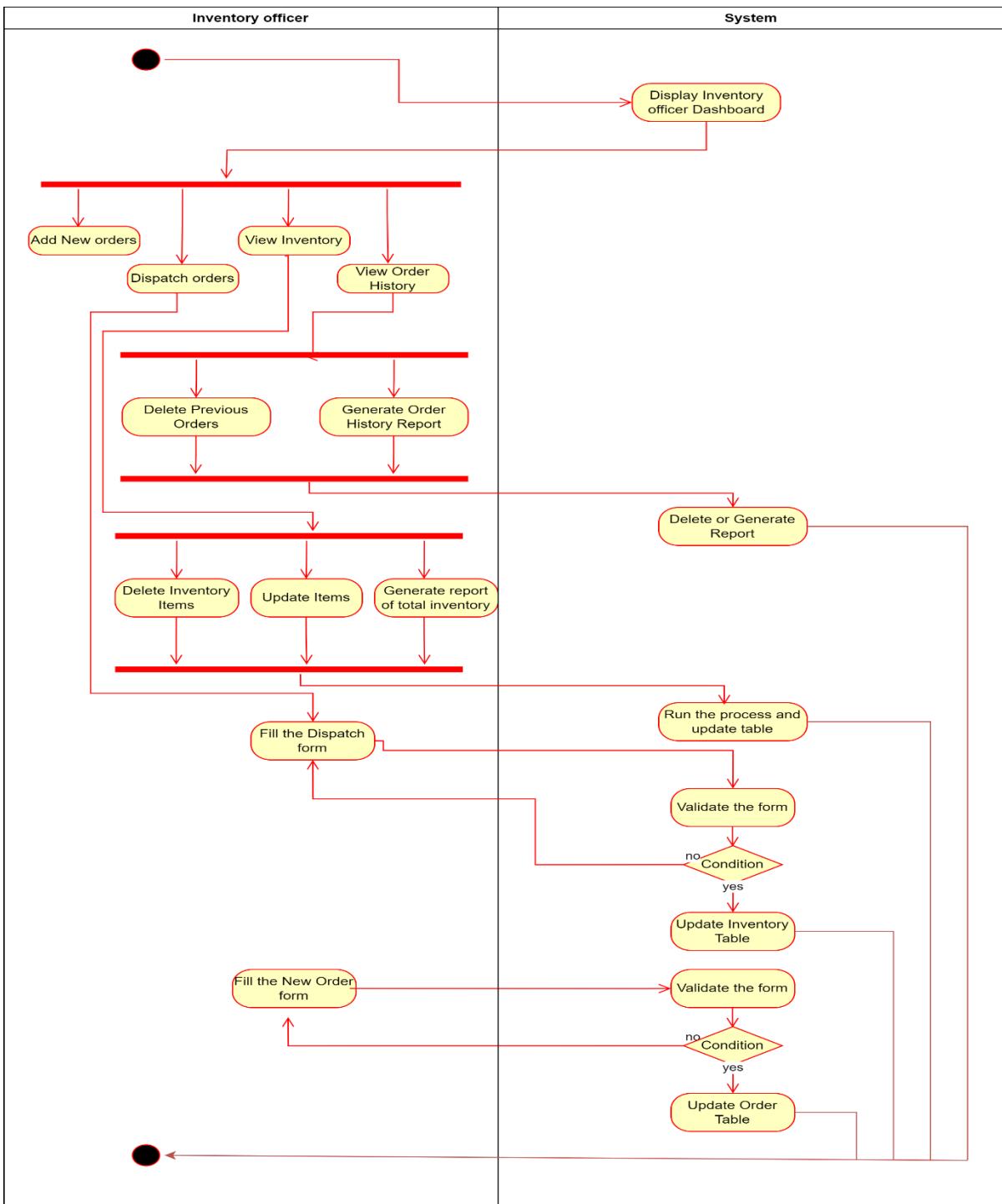


Figure 3.5.3 Activity Diagram Inventory Management

3.5.4. Medicine Delivery Management

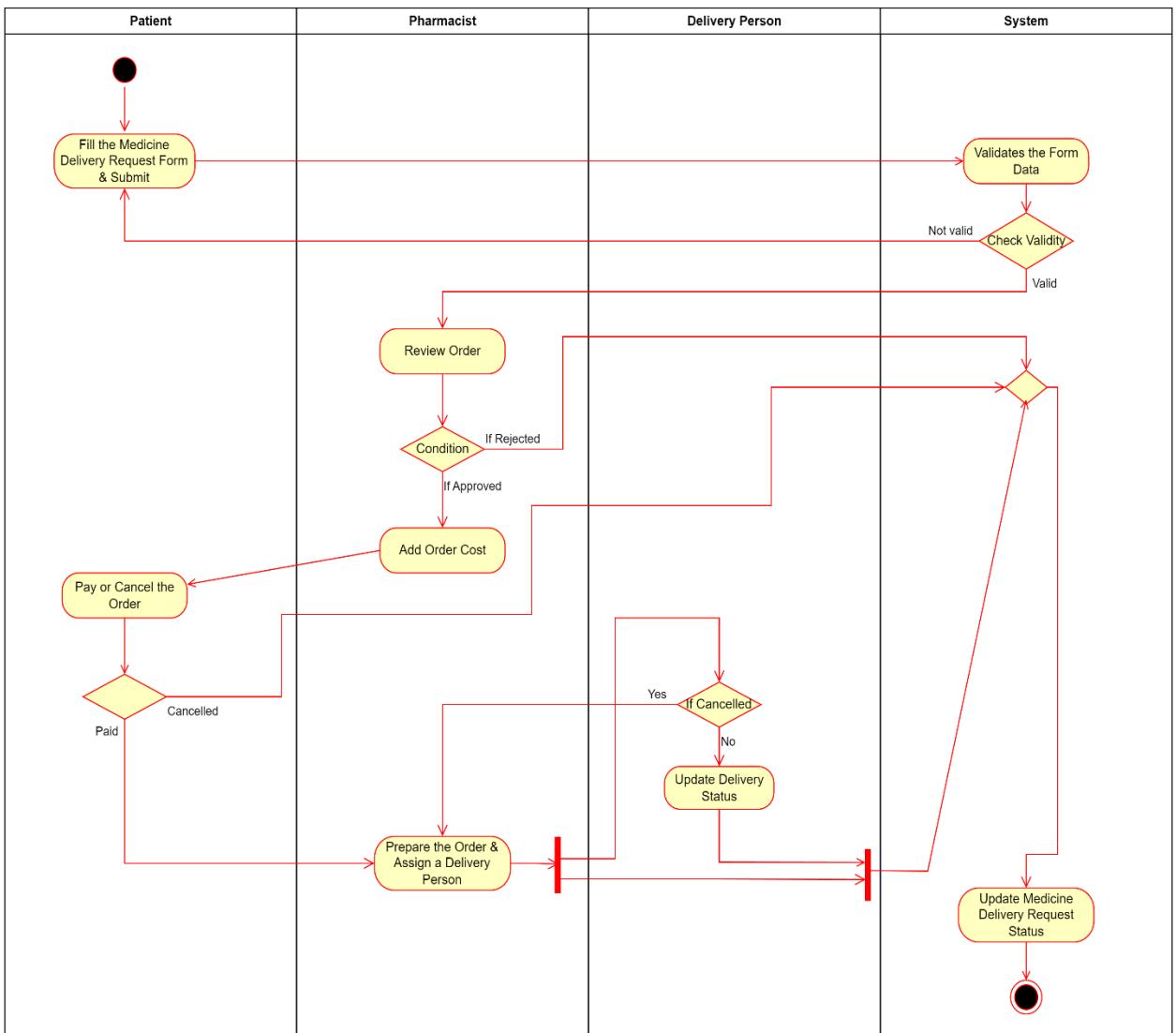


Figure 3.5.4 Activity Diagram Medicine Delivery Management

3.5.5. Test Result Management

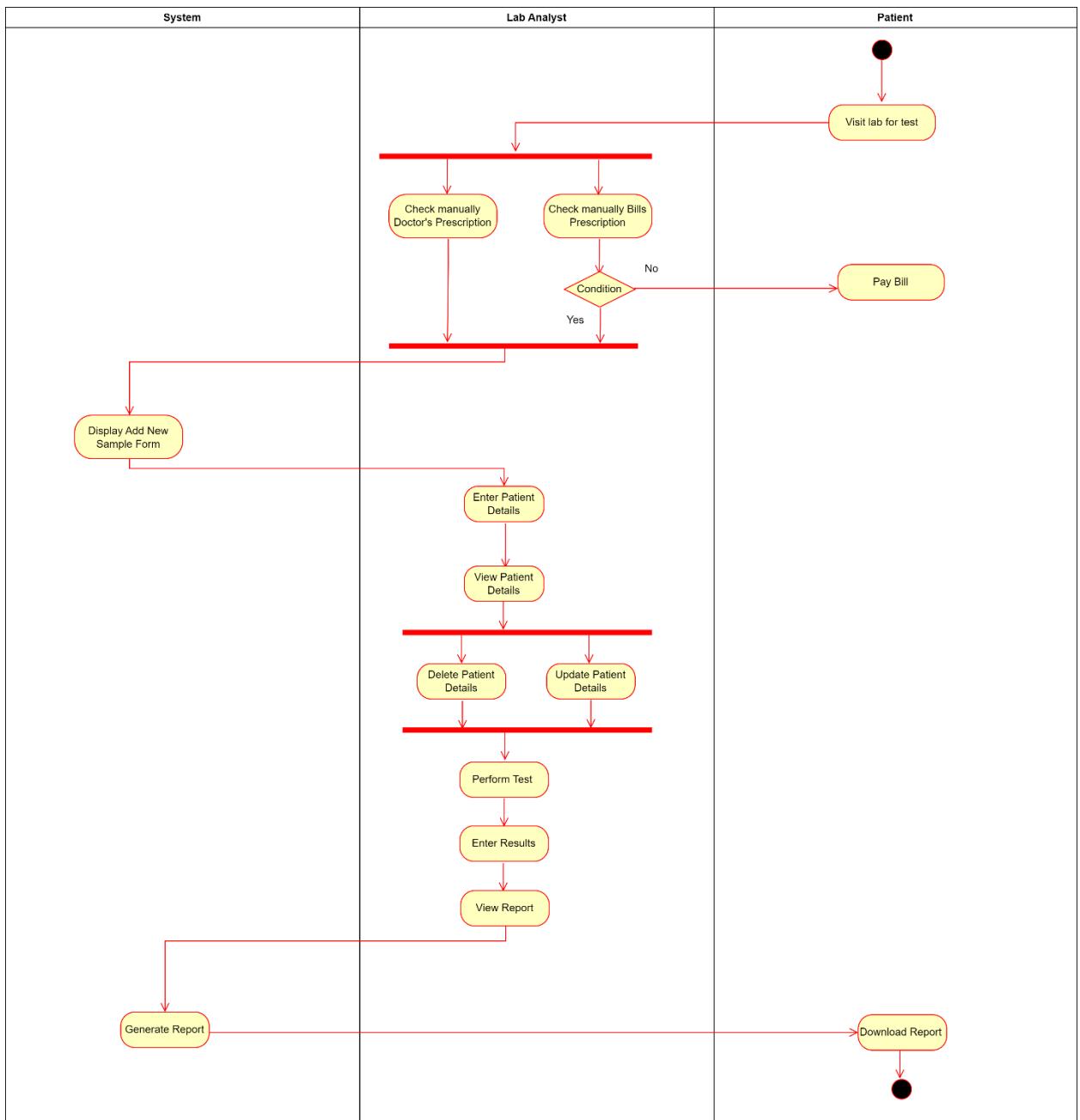


Figure 3.5.5 Activity Diagram Test Result Management

3.5.6.Employee Management

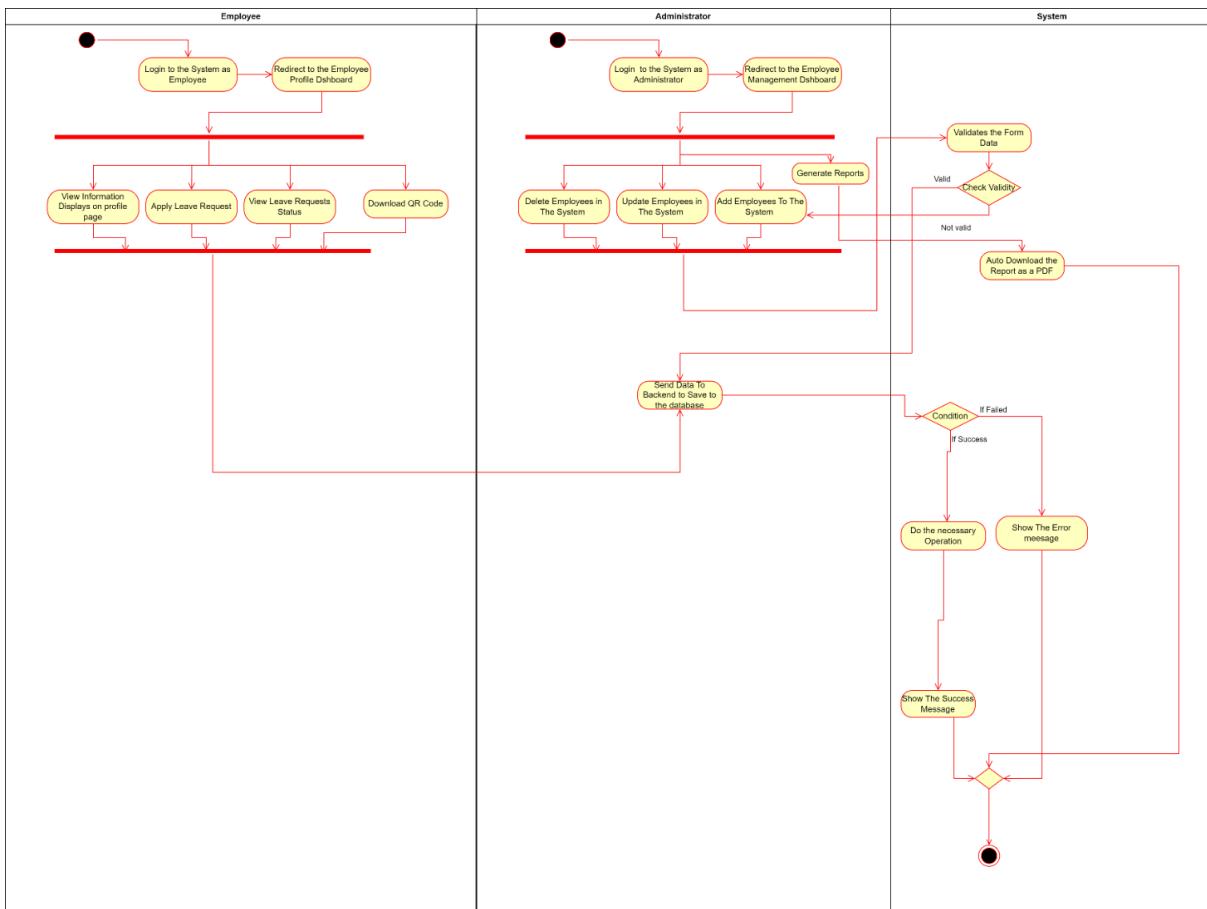


Figure 3.5.6 Activity Diagram Employee Management

3.5.7.Billing & Invoice management

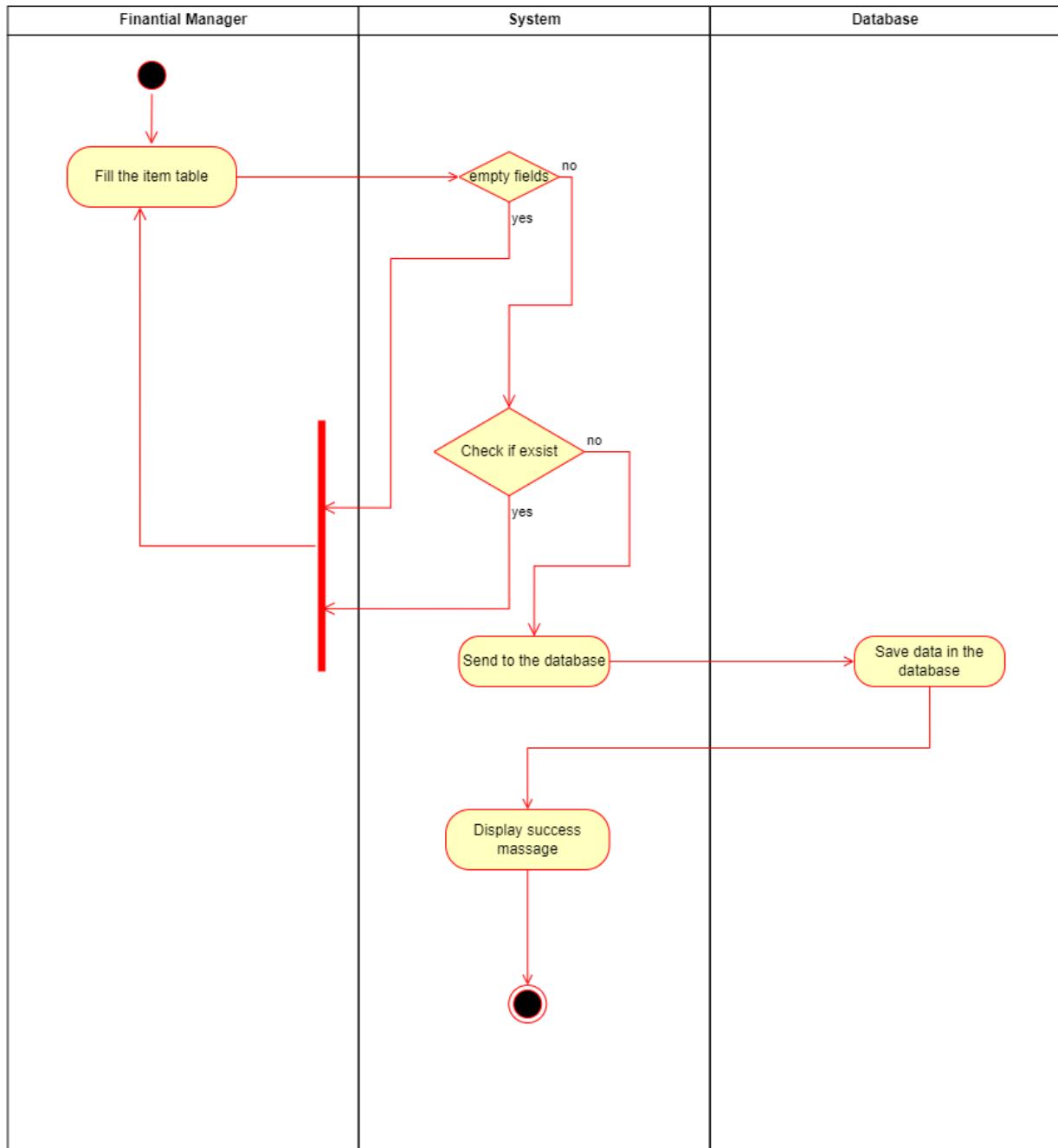


Figure 3.5.7 Activity Diagram Billing & Invoice Management

3.5.8.Compliance Handling & Feedback Management

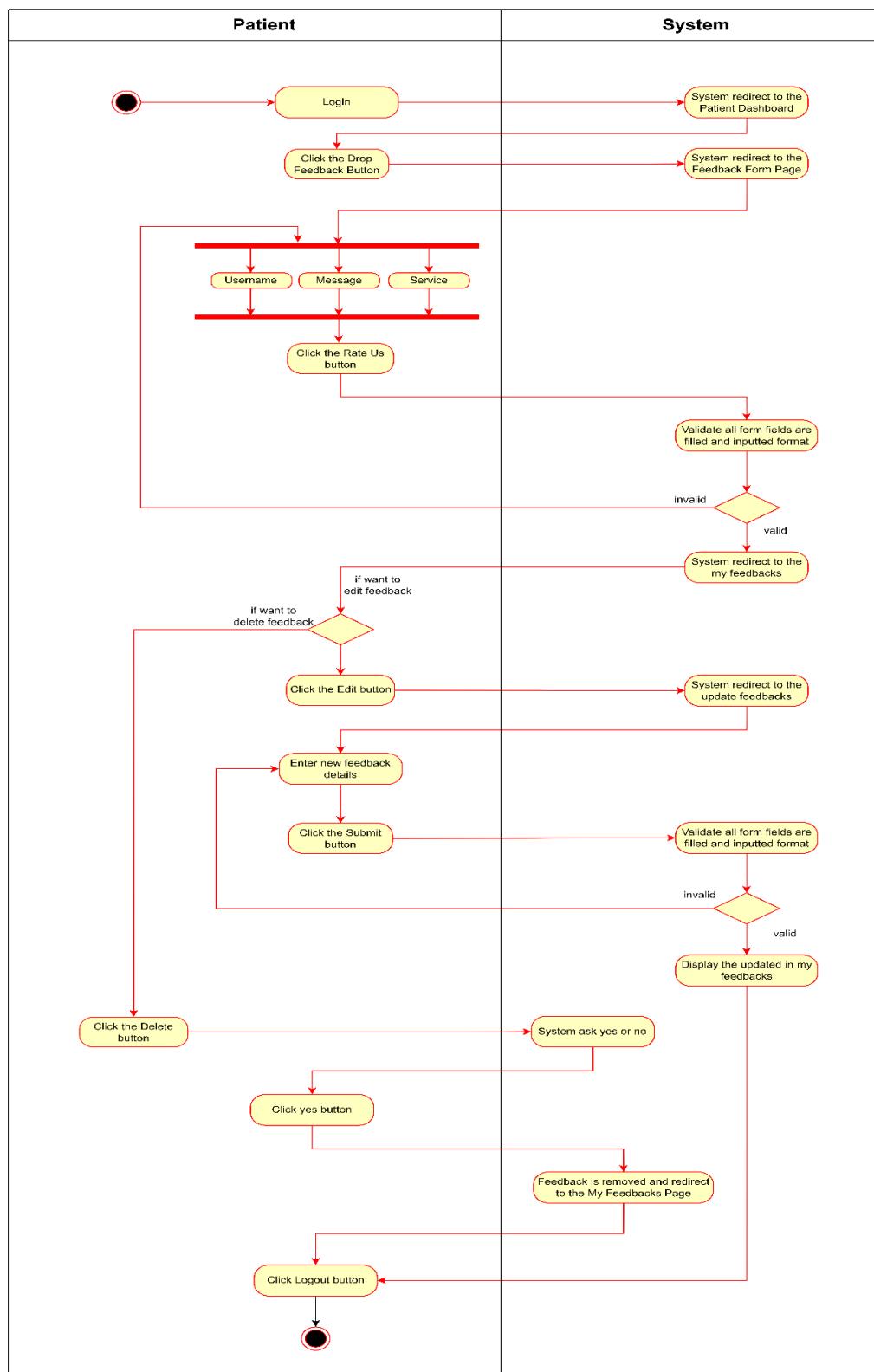


Figure 3.5.8 8 Activity Diagram Compliance Handling & Feedback Management

3.6. Use Case diagrams of each function.

3.6.1. User Management

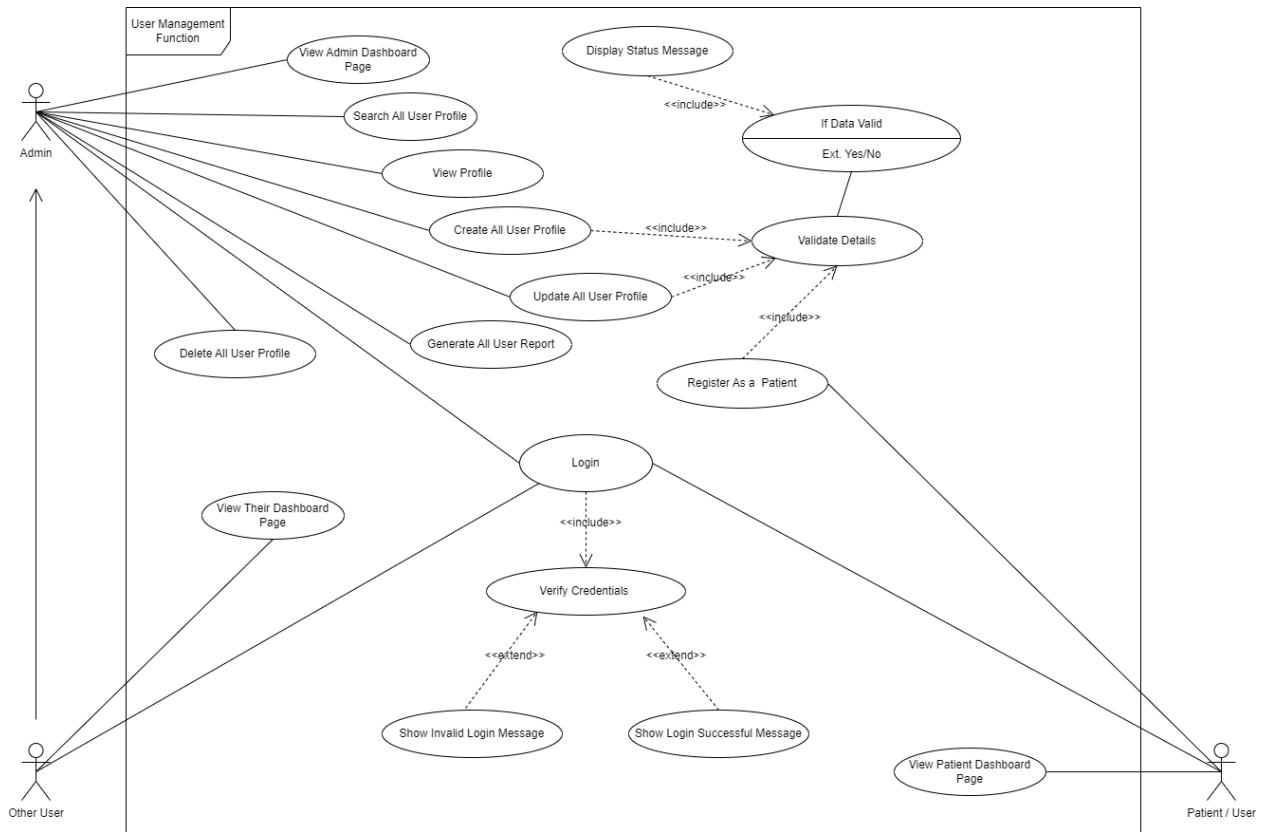


Figure 3.6.1 Use Case Diagram User Management

3.6.2.Appointment Management

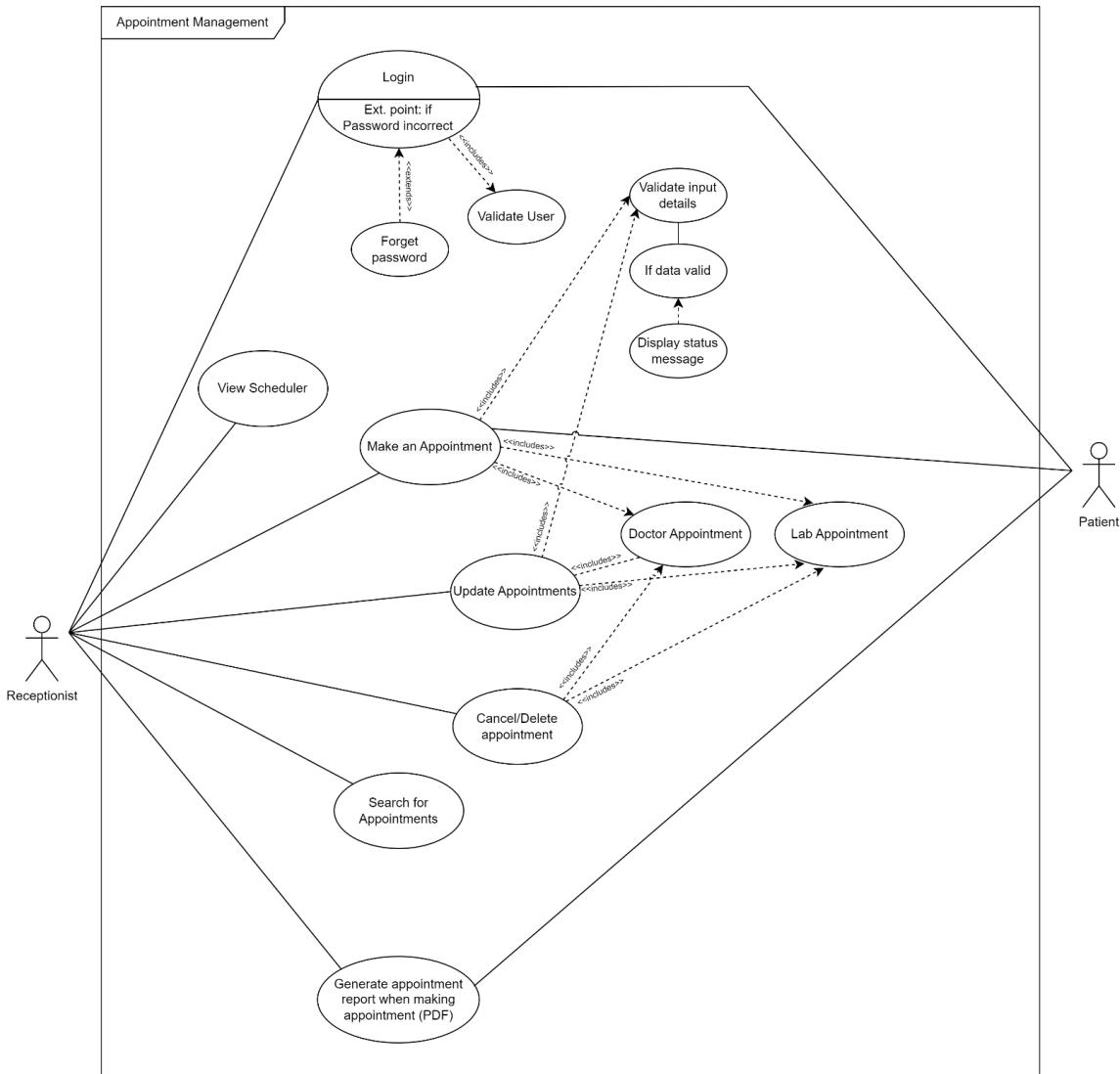


Figure 3.6.2 Use Case Diagram Appointment Management

3.6.3.Inventory Management

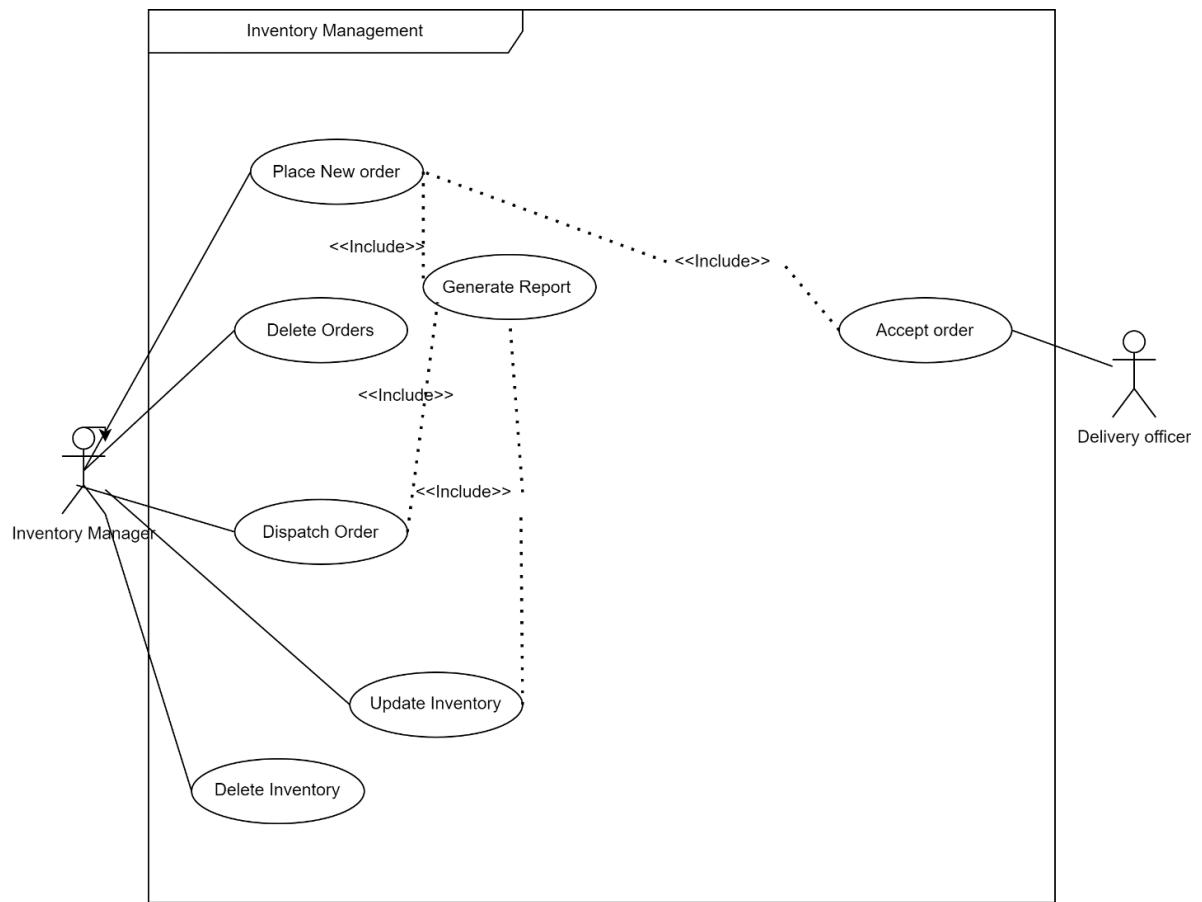


Figure 3.6.3 Use Case Diagram Inventory Management

3.6.4. Medicine Delivery Management

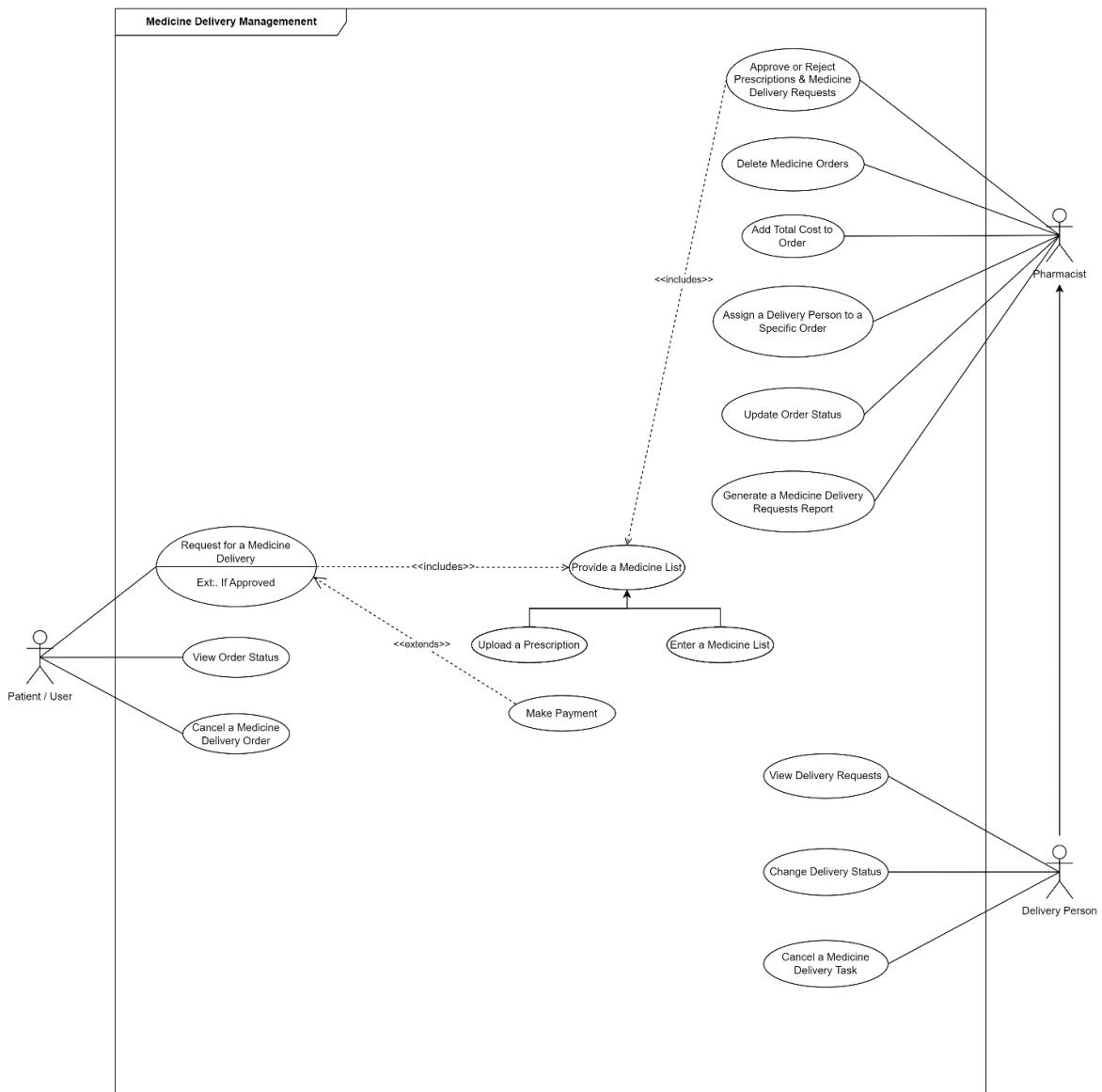


Figure 3.6.4 Use Case Diagram Medicine Delivery Management

3.6.5. Test Result Management



Figure 3.6.5 Use Case Diagram Test Result Management

3.6.6.Employee Management

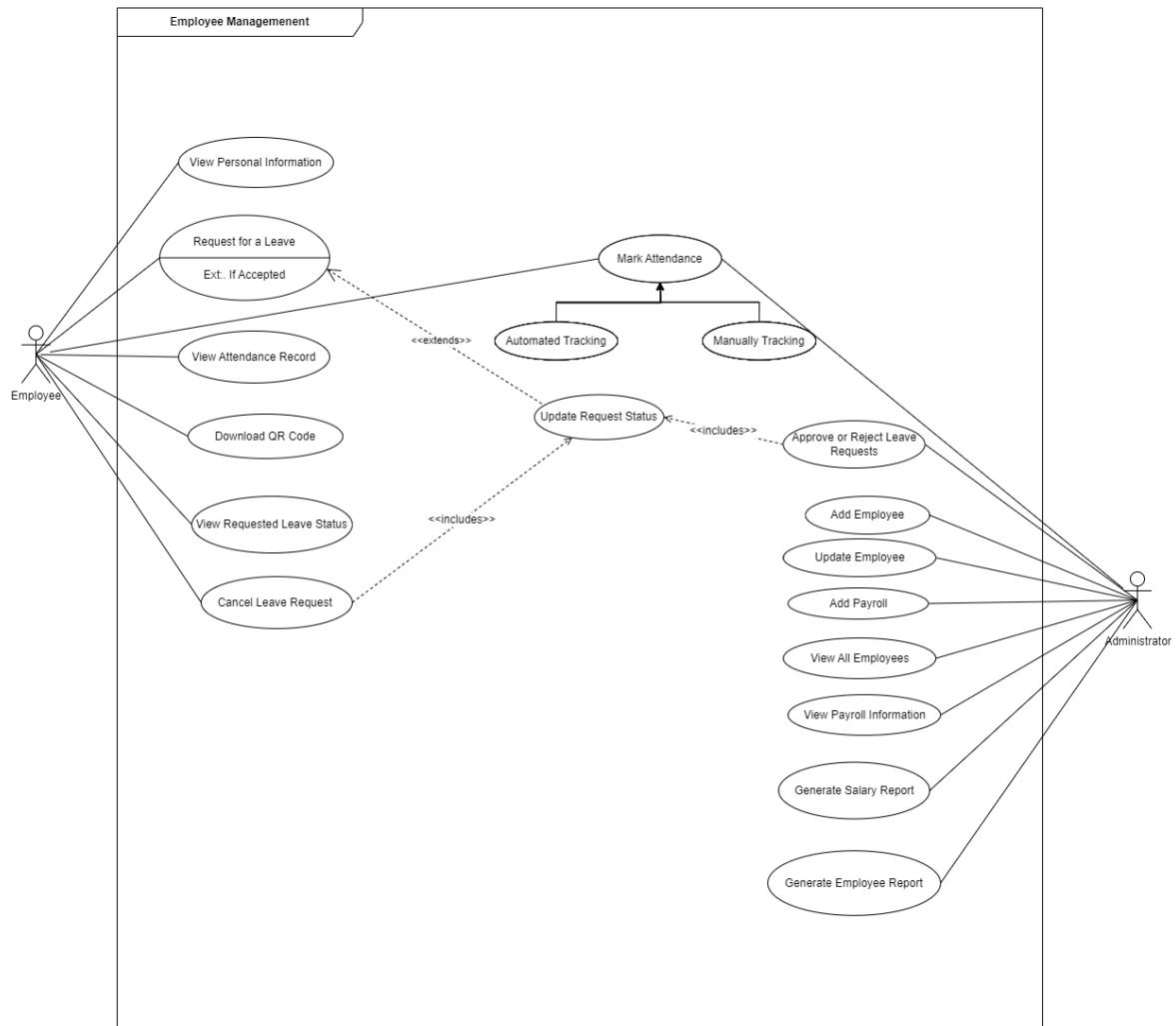


Figure 3.6.6 Use Case Diagram Employee Management

3.6.7.Billing & Invoice Management

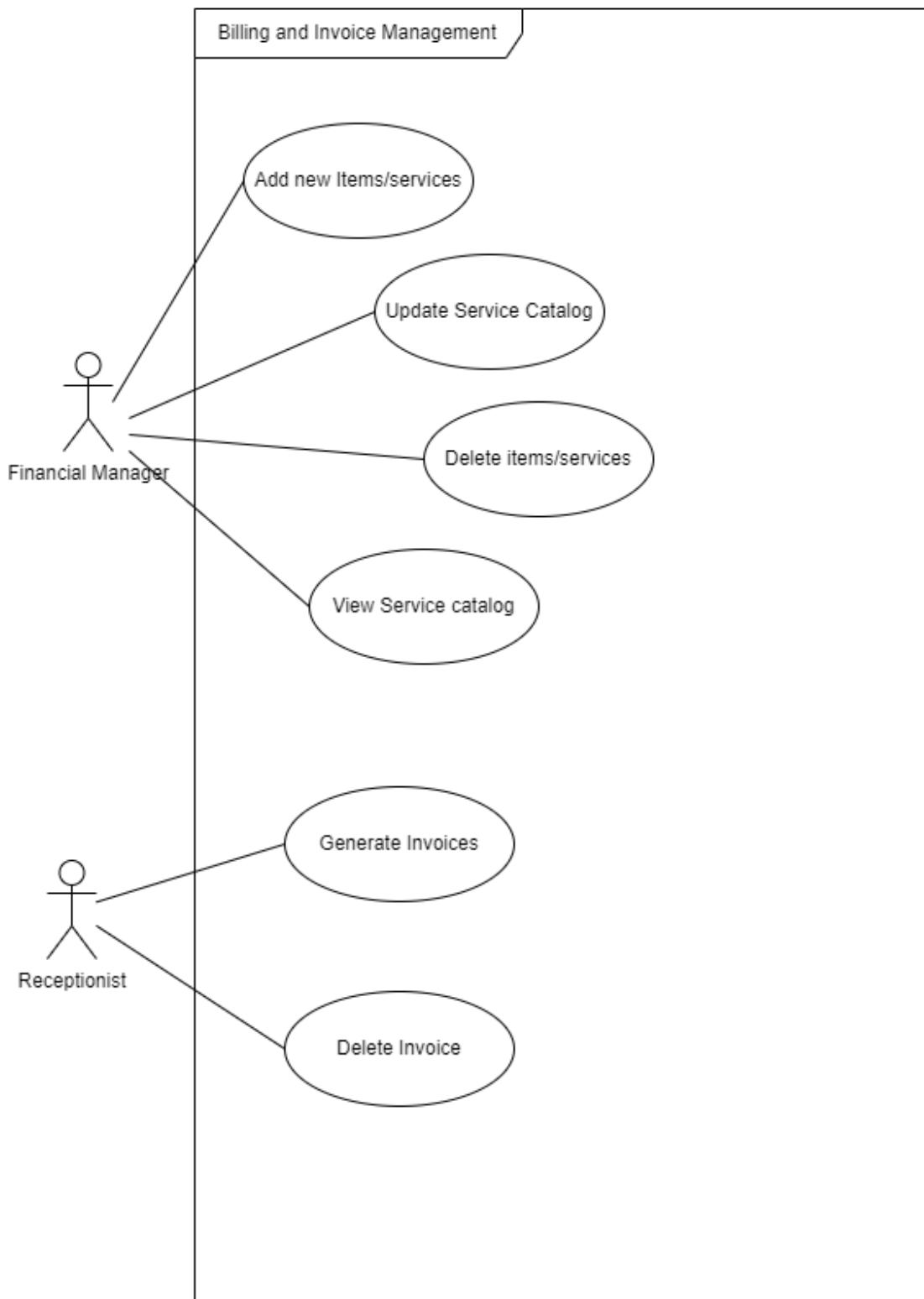


Figure 3.6.7 Use Case Diagram Billing & Invoice Management

3.6.8.Compliance Handling & Feedback Management

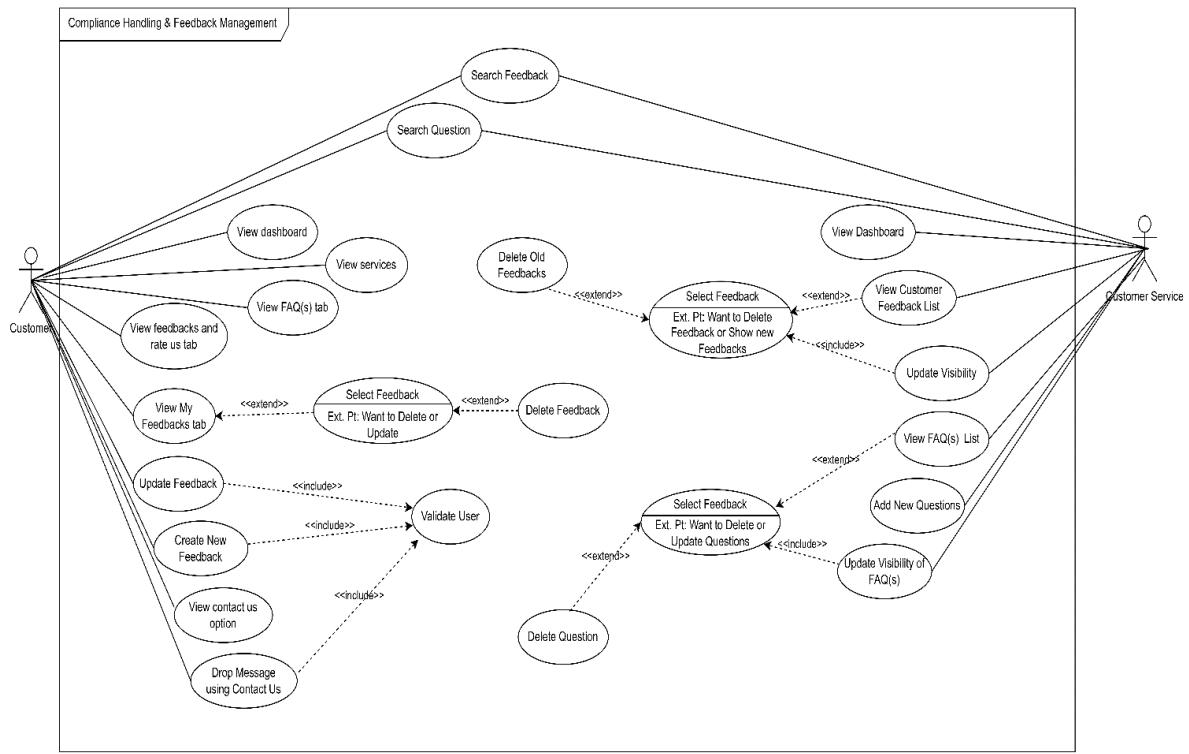


Figure 3.6.8 Use Case Diagram Compliance Handling & Feedback Management

4. Testing – Test cases and results

4.1. Test Cases of each Function

4.1.1. User Management

Test Case ID: 0010	Test Designed By: M.A.T.M. Wanshathilaka
Test Title: Testing make add user to the system	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: M.A.T.M. Wanshathilaka
Module Name: Add User	Test Executed Date: 2023.05.09
Description: Enter required details such as first name, last name, user type, email & password	
Pre-condition: Admin must log in to the system	
Dependencies: System Status, User Authentication, User Roll and Permiton, Existing User Database, Correct User Input	
Test steps: <ul style="list-style-type: none">• Login to the system by entering correct user login credentials.• Click the "Add New User" button on the "All User Details" page.• Visit the "Add User" page.• Fill all required fields with correct details.• Click on the "Add" button.	

Table 4.1.1.1 Test case results for Add User - by an Admin

Test Case ID: 0011	Test Designed By: M.A.T.M. Wanshathilaka
Test Title: Testing make add user to the system	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: M.A.T.M. Wanshathilaka
Module Name: Update User	Test Executed Date: 2023.05.09
Description: Enter required details such as first name, last name, user type, email & password	
Pre-condition: Admin must log in to the system	
Dependencies: System Status, User Authentication, User Database, Existing User Data, Correct User Input	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct user login credentials. • Click the "Edit" button on the "All User Details" page. • Visit the "Update User" page. • Fill all required fields with correct details. • Click on the "Update" button. 	

Table 4.1.1.2 Test case results for Update User - by an Admin

Test Case ID: 0012	Test Designed By: M.A.T.M. Wanshathilaka
Test Title: Testing make delete user from the system	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: M.A.T.M. Wanshathilaka
Module Name: Delete User	Test Executed Date: 2023.05.09
Description: Delete User from the system	
Pre-condition: Admin must log in to the system	
Dependencies: System Status, User Authentication, User Database, Existing User Data	
<p>Test steps:</p> <ul style="list-style-type: none"> • Login to the system by entering correct user login credentials. • Click the "Delete" button on the "All User Details" page. • Click on the "Ok" button on the warning message popup. 	

Table 4.1.1.3 Test case results for Delete User - by an Admin

Test Case ID: 0013	Test Designed By: M.A.T.M. Wanshathilaka
Test Title: Testing make view user from the system	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: M.A.T.M. Wanshathilaka
Module Name: View User	Test Executed Date: 2023.05.09
Description: View specific user details	
Pre-condition: Admin must log in to the system	
Dependencies: System Status, User Authentication, User Database, Existing User Data	
<p>Test steps:</p> <ul style="list-style-type: none"> • Login to the system by entering correct user login credentials. • Click the first name of user on the “All User Details” page. 	

Table 4.1.1.4 Test case results for View Specific User - by an Admin

Test Case ID: 0014	Test Designed By: M.A.T.M. Wanshathilaka
Test Title: Testing make view user from the system	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: M.A.T.M. Wanshathilaka
Module Name: View All User	Test Executed Date: 2023.05.09
Description: View all user details in the system	
Pre-condition: Admin must log in to the system	
Dependencies: System Status, User Authentication, User Database, Existing User Data	
<p>Test steps:</p> <ul style="list-style-type: none"> • Login to the system by entering correct user login credentials. • Admin redirected to the “All User Details” page. 	

Table 4.1.1.5 Test case results for View All User - by an Admin

Test Case ID: 0015	Test Designed By: M.A.T.M. Wanshathilaka
Test Title: Testing make view user from the system	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: M.A.T.M. Wanshathilaka
Module Name: Generate PDF Report	Test Executed Date: 2023.05.09
Description: Generate all user details as pdf report.	
Pre-condition: Admin must log in to the system	
Dependencies: System Status, User Authentication, User Database, Existing User Data, PDF Generation Functionality	
<p>Test steps:</p> <ul style="list-style-type: none"> • Login to the system by entering correct user login credentials. • Click the "PDF Report" button on the “All User Details” page. 	

Table 66 Test case results for Generate All User Details PDF Report - by an Admin

Test Case ID: 0016	Test Designed By: M.A.T.M. Wanshathilaka
Test Title: Testing make view user from the system	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: M.A.T.M. Wanshathilaka
Module Name: Login	Test Executed Date: 2023.05.09
Description: User login to the system	
Pre-condition: Users must have valid user account	
Dependencies: System Status, User Authentication, User Type and Permission, Login Page	
<p>Test steps:</p> <ul style="list-style-type: none"> • Visit “Login” page • Login to the system by entering correct user login credentials. • Redirected to the different pages by their user type. 	

Table 4.1.1.7 Test case results for login - by all users in the system

Test Case ID: 0017	Test Designed By: M.A.T.M. Wanshathilaka
Test Title: Testing make add user to the system	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: M.A.T.M. Wanshathilaka
Module Name: Register	Test Executed Date: 2023.05.09
Description: Enter required details such as first name, last name, email & password	
Pre-condition: Users can only register to the system as user type as “User”	
Dependencies: System Status, User Type, Registration Page, Required Fields	
Test steps: <ul style="list-style-type: none"> • Visit “Login” page • Click the "Register" link on the “Login” page. • Visit the “Register” page. • Fill all required fields with correct details. • Click on the “Register” button. 	

Table 4.1.1.8 Test case results for Register - by all users in the system

4.1.2.Appointment Management

Test Case ID: 0001	Test Designed By: A.R.D. Pinsara
Test Title: Testing make a doctor appointment before the doctor visit	Test Designed Date: 2023.05.04
Test Priority: High	Test Executed By: A.R.D. Pinsara
Module Name: Make a Doctor Appointment	Test Executed Date: 2023.05.05
Description: Enter required details such as Patient ID, Name, Contact Number, Age, Doctor Name, Date, Time slot and email address	
Pre-condition: Patient/ user must sign up and logged in to the system	
Dependencies: Depends on the patient's appointment category (Doctor or lab appointment)	
Test steps: • Login to the system by entering correct user login credentials • Click the "Make Appointment" button on the nav bar • Visit the “Doctor Appointment” page • Fill all required fields with correct details • Click on the “Submit” button	

Table 4.1.2.1 Test case results for Make a Doctor Appointment - by a Patient

Test Case ID: 0002	Test Designed By: A.R.D. Pinsara
Test Title: Testing make a lab appointment before visit for the testing	Test Designed Date: 2023.05.05
Test Priority: High	Test Executed By: A.R.D. Pinsara
Module Name: Make a Lab Appointment	Test Executed Date: 2023.05.06
Description: Enter required details such as Patient ID, Name, Contact Number, Age, Test Type, Date, Time slot and email address	
Pre-condition: Patient/ user must sign up and logged in to the system	
Dependencies: Depends on the patient's appointment category (Lab or Doctor appointment)	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct user login credentials • Click the "Make Appointment" button on the nav bar • Visit the "Lab Appointment" page by clicking "Lab appointment" button in "Doctor appointment" page • Fill all required fields with correct details • Click on the "Submit" button 	

Table 4.1.2.3 Test case results for Make a Lab Appointment - by a Patient

Test Case ID: 0003	Test Designed By: A.R.D. Pinsara
Test Title: Testing make a doctor appointment for patients	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: A.R.D. Pinsara
Module Name: Make a Doctor Appointment by receptionist, to patients	Test Executed Date: 2023.05.08
Description: Enter required details such as Patient ID, Name, Contact Number, Age, Doctor Name, Date, Time slot and email address	
Pre-condition: Receptionist must sign up and logged in to the system	
Dependencies: Depends on the patient's appointment category (Doctor or lab appointment)	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct Receptionist login credentials • Click the "Make Appointment" tab in the nav bar of receptionist dashboard • Visit the “Doctor Appointment” page • Fill all required fields with correct details • Click on the “Submit” button 	

Table 4.1.2.4 Test case results for Make a Doctor Appointment - by the Receptionist

Test Case ID: 0004	Test Designed By: A.R.D. Pinsara
Test Title: Testing make a lab appointment for patients	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: A.R.D. Pinsara
Module Name: Make a Lab Appointment by receptionist, to patients	Test Executed Date: 2023.05.08
Description: Enter required details such as Patient ID, Name, Contact Number, Age, Test Type, Date, Time slot and email address	
Pre-condition: Receptionist must sign up and logged in to the system	
Dependencies: Depends on the patient's appointment category (Lab or Doctor appointment)	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct receptionist login credentials • Click the "Make Appointment" tab in the nav bar of receptionist dashboard • Visit the "Lab Appointment" page by clicking "Lab appointment" button in "Doctor appointment" page • Fill all required fields with correct details • Click on the "Submit" button 	

Table 4.1.2.5 Test case results for Make a Lab Appointment - by the Receptionist

Test Case ID: 0005	Test Designed By: A.R.D. Pinsara
Test Title: Testing Update a previously scheduled appointment	Test Designed Date: 2023.05.08
Test Priority: High	Test Executed By: A.R.D. Pinsara
Module Name: Update previously scheduled appointments by receptionist as per patient requirements (rescheduling)	Test Executed Date: 2023.05.09
Description: Update previously entered required details such as Contact Number, Age, Doctor Name/Test Type, Date, Time slot and email address *(patient ID, Name values can't update, once schedule an appointment)	
Pre-condition: Receptionist must sign up and logged in to the system	
Dependencies: Depends on the patient's requirements	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct Receptionist login credentials • Click the "Scheduler" tab in the nav bar of receptionist dashboard • Visit the “Scheduler” page • Select the appointment which, needed to be updated and click on "update" button next to the chosen appointment • Update all the required fields and Click on the “Submit” button 	

Table 4.1.2.6 Test case results for Update Appointments - by the Receptionist

Test Case ID: 0006	Test Designed By: A.R.D. Pinsara
Test Title: Testing Cancel a scheduled appointment	Test Designed Date: 2023.05.08
Test Priority: High	Test Executed By: A.R.D. Pinsara
Module Name: Cancel previously scheduled appointments by receptionist as per patient requirements (Cancel and Deleting)	Test Executed Date: 2023.05.09
Description: Cancel a selected appointment and delete it from the whole database	
Pre-condition: Receptionist must sign up and logged in to the system	
Dependencies: Depends on the patient's requirements and admin panel's requirements	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct Receptionist login credentials • Click the "Scheduler" tab in the nav bar of receptionist dashboard • Visit the “Scheduler” page • Select the appointment which, needed to be cancelled and click on "cancel" button next to the chosen appointment • Click on the “Yes” button in the pop-up sweet alert 	

Table 4.1.2.7 Test case results for Cancel (Delete) Appointments - by the Receptionist

4.1.3.Inventory Management

Test Case ID: 0075	Test Designed By: E.M.A.Ekanayaka
Test Title: Testing make a doctor appointment for patients	Test Designed Date: 2023.04.29
Test Priority: High	Test Executed By: E.M.A.Ekanayaka
Module Name: Delete inventory items in inventory	Test Executed Date: 2023.04.30
Description: Delete data in the inventory	
Pre-condition: Inventory manager must sign up and logged in to the system	
Dependencies: Depends on the inventory manager requirements	
Test steps: • Login to the system by entering correct Inventory manager login credentials • Click the "Inventory" tab in the nav bar of Manager dashboard • Visit the “Inventory” page • Click the delete button and click ok button on the sweet alert.	

Table 4.1.3.1 Test case results for Delete Inventory items - by the Inventory manager.

Test Case ID: 0076	Test Designed By: E.M.A.Ekanayaka
Test Title: Testing make a lab appointment for patients	Test Designed Date: 2023.04.29
Test Priority: High	Test Executed By: E.M.A.Ekanayaka
Module Name: Make a dispatch order by Inventory manager	Test Executed Date: 2023.04.30
Description: Enter required details such as Item ID, Brand Name, Quantity, Departemnt,	
Pre-condition: Inventory manager must sign up and logged in to the system	
Dependencies: Depends on the Stocks received to the inventory	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct Inventory manager login credentials • Click the "Dispatch" tab in the nav bar of Manager dashboard • Visit the “Dispatch” page by clicking " Dispatch " button in dashboard page • Fill all required fields with correct details • Click on the “Submit” button 	

Table 4.1.3.2 Test case results for Make dispatch order- by the Inventory manager

Test Case ID: 0077	Test Designed By: E.M.A.Ekanayaka
Test Title: Testing Update an Inventory Item	Test Designed Date: 2023.04.29
Test Priority: High	Test Executed By: E.M.A.Ekanayaka
Module Name: Update Items in the inventory by as per Inventory dispatch (Dispatching)	Test Executed Date: 2023.04.30
Description: Update previously entered Details that are in the inventory table*(Item Id can't update)	
Pre-condition: Inventory manager must sign up and logged in to the system	
Dependencies: Depends on the dispatch items	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct Inventory manager login credentials • Click the "Inventory" tab in the nav bar of Inventory manager dashboard <ul style="list-style-type: none"> • Visit the "Inventory" page • Select the Item which, needed to be updated and click on "update" button. • Update all the required fields and Click on the "Submit" button 	

Table 4.1.3.3 Test case results for Update Inventory - by the Inventory manager

Test Case ID: 0078	Test Designed By: E.M.A.Ekanayaka
Test Title: Testing Cancel a Placed Order	Test Designed Date: 2023.04.29
Test Priority: High	Test Executed By: E.M.A.Ekanayaka
Module Name: Cancel previously Ordered items by Inventory officer as per inventory requirements (Cancel and Deleting)	Test Executed Date: 2023.04.30
Description: Cancel a selected orders and delete it from the whole database	
Pre-condition: Inventory manager must sign up and logged in to the system	
Dependencies: Depends on the inventory requirements and admin panel's requirements	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct Inventory manager login credentials • Click the "Order history" tab in the nav bar of Manager dashboard • Visit the “Order history” page • Select the order which, needed to be cancelled and click on "delete" button next to the update button <ul style="list-style-type: none"> • Click on the “Yes” button in the pop-up sweet alert 	

Table 4.1.3.4 Test case results for Cancel (Delete) Orders- by the Inventory Manager

4.1.4.Medicine Delivery Management

Test Title: Medicine Delivery Management	Test Designed Date: 2023.05.10
Test case ID: MD-001	Test designed by: U.N.H.Madhuwantha
Module Name: User Medicine Order	Test Executed By: U.N.H.Madhuwantha
Test priority: High	Test Executed Date: 2023.05.10
Description: Test the process of placing a medicine order by a user.	
Preconditions: User is logged in and has medication details.	
Dependencies:	
Test steps: 1. Enter medication details in the order form. 2. Provide delivery address. 3. Submit the order.	

Table 4.1.4.1 Medicine Delivery Management 2

Test Title: Medicine Delivery Management	Test Designed Date: 2023.05.10
Test case ID: MD-002	Test designed by: U.N.H.Madhuwantha
Module Name: Pharmacist Approval	Test Executed By: U.N.H.Madhuwantha
Test priority: High	Test Executed Date: 2023.05.10
Description: Test the approval process for medicine delivery requests.	
Preconditions: Pharmacist receives a medicine delivery request.	
Dependencies: Medicine delivery request exists.	
Test steps: <ol style="list-style-type: none"> 1. Review the prescription details. 2. Verify medicine availability. 3. Approve the request if everything is in order. 	

Table 4.1.4.2 Medicine Delivery Management 2

Test Title: Medicine Delivery Management	Test Designed Date: 2023.05.11
Test case ID: MD-003	Test designed by: U.N.H.Madhuwantha
Module Name: Pharmacist Billing	Test Executed By: U.N.H.Madhuwantha
Test priority: Medium	Test Executed Date: 2023.05.11
Description: Test the calculation of the total cost for a medicine order.	
Preconditions: Medicine delivery request is approved.	
Dependencies:	
Test steps: <ol style="list-style-type: none"> 1. Calculate the cost of medicines, delivery fees, and taxes. 2. Add the total cost to the medicine delivery request. 	

Table 4.1.4.3 Medicine Delivery Management 3

Test Title: Medicine Delivery Management	Test Designed Date: 2023.05.15
Test case ID: MD-004	Test designed by: U.N.H.Madhuwantha
Module Name: Patient Order Tracking	Test Executed By: U.N.H.Madhuwantha
Test priority: Medium	Test Executed Date: 2023.05.15
Description: Test the ability of patients to track the status of their orders.	
Preconditions: Patient has a medicine delivery request.	
Dependencies:	
Test steps: <ol style="list-style-type: none"> 1. Access the dashboard. 2. Locate the specific medicine delivery request. 3. Check the status of the order. 	

Table 4.1.4.4 Medicine Delivery Management 4

Test Title: Medicine Delivery Management	Test Designed Date: 2023.05.15
Test case ID: MD-005	Test designed by: U.N.H.Madhuwantha
Module Name: Delivery Person Assignment	Test Executed By: U.N.H.Madhuwantha
Test priority: Medium	Test Executed Date: 2023.05.15
Description: Test the assignment of delivery persons to approved orders.	
Preconditions: Approved medicine delivery request exists.	
Dependencies: Delivery persons available.	
Test steps: <ol style="list-style-type: none"> 1. Access the delivery person dashboard. 2. Find the approved medicine delivery request. 3. Assign a delivery person to the order. 	

Table 4.1.4.5 Medicine Delivery Management 5

Test Title: Medicine Delivery Management	Test Designed Date: 2023.05.15
Test case ID: MD-006	Test designed by: U.N.H.Madhuwantha
Module Name: Delivery Status Update.	Test Executed By: U.N.H.Madhuwantha
Test priority: Low	Test Executed Date: 2023.05.15
Description: Test the ability to update the delivery status for each order.	
Preconditions: Delivery person is assigned to an order.	
Dependencies:	
Test steps: <ol style="list-style-type: none"> 1. Access the delivery person dashboard. 2. Locate the assigned order. 3. Update the delivery status for the order. 	

Table 4.1.4.6 Medicine Delivery Management 6

Test ID	Test Inputs	Expected Output	Actual Output	Result	Comments
MD-001	Medication details, delivery address	Order is successfully placed	Order is successfully placed	Pass	
MD-002	Medicine delivery request details	Request is in review and ready to process the delivery after approving or cancel the request.	Request is in review and ready to process the delivery after approving or cancel the request.	Pass	
MD-003	Total Medicine cost, including delivery fees, and taxes	Total cost is added and sent to the patient.	Total cost is added and sent to the patient.	Pass	
MD-004	Medicine delivery request status	Status of the order is displayed correctly	Status of the order is displayed correctly	Pass	
MD-005	Approved medicine delivery request, available delivery persons	Delivery person is successfully assigned to the order	Delivery person is successfully assigned to the order	Pass	
MD-006	Assigned order,	Delivery status is	Delivery status is	Pass	

	delivery status update	updated successfully	updated successfully		
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Table 4.1.4.7 Medicine Delivery Management 7

4.1.5. Test Result Management

Test Case ID: 0001	Test Designed By: M.J.E.M Arachchi
Test Title: Test adding new sample	Test Designed Date: 2023.05.01
Test Priority: High	Test Executed By: M.J.E.M Arachchi
Module Name: Add New Sample	Test Executed Date: 2023.05.02
Description: Enter required details such as Appointment ID, Sample ID, Patient Name, Patient Address, Contact Number, Age, Sample Type, Test name	
Pre-condition: Lab Analyst must sign up and logged in to the system	
Dependencies: Depends on the patient's appointment category (Lab appointment)	
Test steps: • Login to the system by entering correct user login credentials • Click the "Add New Sample" button on the nav bar • Visit the “Add new sample form” page • Fill all required fields with correct details • Click on the “Submit” button	

Table 4.1.5.1 Test case results for Add new Sample - by a Lab Analyst

Test Case ID: 0002	Test Designed By: M.J.E.M Arachchi
Test Title: Testing adding Test results	Test Designed Date: 2023.05.02
Test Priority: High	Test Executed By: M.J.E.M Arachchi
Module Name: Add Test results	Test Executed Date: 2023.05.03
Description: Enter test results such as Test Name, results value, unit, Reference Value	
Pre-condition: Lab Analyst must sign up and logged in to the system	
Dependencies:	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct Lab Analyst login credentials • Click the "Add result" button in the patient details table of Sample List Page. • Visit the “Add Test result” page • Fill all required fields with correct details • Click on the “Submit” button 	

Table 4.1.5.2 Test case results for Enter Test results - by the Lab Analyst

Test Case ID: 0003	Test Designed By: M.J.E.M Arachchi
Test Title: Testing Update patient details	Test Designed Date: 2023.05.04
Test Priority: High	Test Executed By: M.J.E.M Arachchi
Module Name: Update Patient details lab analyst as per patient requirements	Test Executed Date: 2023.05.05
Description: Update previously entered required details such as Appointment ID, Sample ID, Patient Name, Patient Address, Contact Number, Age, Sample Type, Test name	
Pre-condition: Lab Analyst must sign up and logged in to the system	
Dependencies: Depends on the patient's requirements	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct Lab Analyst login credentials. • Click the "Sample List" tab in the nav bar of Lab Analyst dashboard • Click the "Update" button in the patient details table of Lab Analyst dashboard. • Select the patient which, needed to be updated and click on "update" button • Update all the required fields and Click on the “Submit” button 	

Table 4.1.5.3 Test case results for Update Patient details - by the Lab Analyst

Test Case ID: 0004	Test Designed By: M.J.E.M Arachchi
Test Title: Testing delete patient details	Test Designed Date: 2023.05.06
Test Priority: High	Test Executed By: M.J.E.M Arachchi
Module Name: Delete Patient details by Lab Analyst as per Storage Problem	Test Executed Date: 2023.05.07
Description: Delete a selected patient details from the whole database	
Pre-condition: Lab Analyst must sign up and logged in to the system	
Dependencies: Depends on the Storage problems and admin panel's requirements	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct Lab Analyst login credentials • Click the "Sample List" tab in the nav bar of Lab Analyst dashboard • Visit the “Sample List” page • Select the patient which, needed to be delete and click on "delete" button. 	

Table 4.1.5.4 Test case results for Delete Patient details - by the Lab Analyst

4.1.6.Employee Management

Test Case ID: 0001	Test Designed By: G.K.G. Saranga
Test Title: Testing add employee to the system before the using the function on work	Test Designed Date: 2023.05.04
Test Priority: High	Test Executed By: G.K.G. Saranga
Module Name: Add Employee to the system	Test Executed Date: 2023.05.05
Description: Enter required details such as Name, Contact Number, Age, address, email address, nic, gender	
Pre-condition: Administrator must sign up and logged in to the system	
Dependencies: Depends on the Employee ID	
Test steps: <ul style="list-style-type: none">• Login to the system as administrator by entering correct user login credentials• Click the "Dashboard" button on the nav bar• Visit the “Employee Management Dashboard” page• Fill all required fields with correct details• Click on the “Add” button	

Table 4.1.6.1 Test case results for Add Employee - by the Administrator

Test Case ID: 0002	Test Designed By: G.K.G. Saranga
Test Title: Testing update employee to the system before the using the function on work	Test Designed Date: 2023.05.05
Test Priority: High	Test Executed By: G.K.G. Saranga
Module Name: Update Employee Details	Test Executed Date: 2023.05.06
Description: Enter required details for update such as Name, Contact Number, Age, address, email address, nic, gender	
Pre-condition: Administrator must sign up and logged in to the system	
Dependencies: Depends on the Employee ID	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct user login credentials • Click the "Update" button on Dashboard Screen • Visit the “Update Employee” page • Fill all required fields with correct details • Click "Update" button 	

Table 4.1.6.2 Test case results for Update Employee - by the Administrator

Test Case ID: 0003	Test Designed By: G.K.G. Saranga
Test Title: Testing delete employees	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: G.K.G. Saranga
Module Name: Delete employee by administrator	Test Executed Date: 2023.05.08
Description: Select a particular employee for remove from the system	
Pre-condition: Administrator must sign up and logged in to the system	
Dependencies: Depends on the Employee ID	
Test steps: <ul style="list-style-type: none"> • Login to the system as administrator by entering correct user login • Click the "Delete" button of employee dashboard • Confirm Alert is pop up 	

Table 4.1.6.3 Test case results for Delete Employee - by the Administrator

Test Case ID: 0004	Test Designed By: G.K.G. Saranga
Test Title: Testing the report generation by using employee details	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: G.K.G. Saranga
Module Name: Generate a report	Test Executed Date: 2023.05.08
Description: This test case for test the report generation	
Pre-condition: Administrator must sign up and logged in to the system	
Dependencies: Depends on the Employee ID	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct administrator login credentials • Click the "Generate & Download Report" button on dashboard • Download the report 	

Table 4.1.6.4 Test case results for Generate Report - by the Administrator

Test Case ID: 0005	Test Designed By: G.K.G. Saranga
Test Title: Testing QR code reader	Test Designed Date: 2023.05.08
Test Priority: High	Test Executed By: G.K.G. Saranga
Module Name: Reading QR code for tracking the attendance	Test Executed Date: 2023.05.09
Description:	
Pre-condition: Administrator must sign up and logged in to the system	
Dependencies: Depends on Employee ID and Current date	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct Administrator login credentials • Click the "QR Scanner" button displays on Employee Management dashboard • Visit the “QR Scanner” page • Select the clock which, needed to be submit and click on "submit" button 	

Table 4.1.6.5 Test case results for QR Reader for Attendance tracking system - by the Administrator

4.1.7.Billing & Invoice Management

Test Case ID: 0001	Test Designed By: Thathsara S. M. K.
Test Title: Testing make an invoice for customer	Test Designed Date: 2023.05.04
Test Priority: High	Test Executed By: Thathsara S. M. K.
Module Name: Invoice Management	Test Executed Date: 2023.05.05
Description: Enter item code, description, price, quantity, amount	
Pre-condition: Receptionist must sign up and logged in to the system	
Dependencies:	
Test steps: • Login to the system by entering correct user login credentials • Click the "Invoice" button on the nav bar • Fill all required fields with correct details • Click on the “Pre-view” button	

Table 4.1.7.1 Test case results Pre-view invoice - by a receptionist

Test Case ID: 0002	Test Designed By: Thathsara S.M. K.
Test Title: Testing make an invoice for customer	Test Designed Date: 2023.05.05
Test Priority: High	Test Executed By: Thathsara S.M. K.
Module Name: Invoice Management	Test Executed Date: 2023.05.06
Description: Enter customer name, customer email, customer address, customer phone and item details.	
Pre-condition: Receptionist must sign up and logged in to the system	
Dependencies:	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct user login credentials • Click the "Invoice" button on the nav bar • Fill all required fields with correct details • Click on the “Save” button 	

Table 4.1.7.2 Test case results for save invoice details - by a receptionist.

Test Case ID: 0003	Test Designed By: Thathsara S. M. K.
Test Title: Testing make an invoice for customer	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: Thathsara S. M. K.
Module Name: Invoice Management	Test Executed Date: 2023.05.08
Description: Delete entered items and delete the invoice	
Pre-condition: Receptionist must sign up and logged in to the system	
Dependencies:	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct user login credentials • Click the "Invoice" button on the nav bar • Fill all required fields with correct details • Click on the “Delete” button 	

Table 4.1.7.3 Test case results delete invoice - by the Receptionist.

Test Case ID: 0004	Test Designed By: Thathsara S. M. K.
Test Title: Testing Add new Item/Service to the service catalog	Test Designed Date: 2023.05.07
Test Priority: High	Test Executed By: Thathsara S. M. K.
Module Name: Invoice Management	Test Executed Date: 2023.05.08
Description: Enter required details such as item code, description, and price.	
Pre-condition: The financial manager must sign up and logged in to the system	
Dependencies:	
Test steps: <ul style="list-style-type: none"> • Login to the system by entering correct user login credentials • Click the "Add new item" button on the nav bar • Fill all required fields with correct details • Click on the “Add” button 	

Table 4.1.7.4 Test case results Create new item/service - by the Financial Manager

Test Case ID: 0005	Test Designed By: Thathsara S. M. K.
Test Title: Testing Update a previously entered item/services from the catalog	Test Designed Date: 2023.05.08
Test Priority: High	Test Executed By: Thathsara S. M. K.
Module Name: Update previously entered item/services by financial manager	Test Executed Date: 2023.05.09
Description: Update previously entered required details such as item code, description, price	
Pre-condition: Financial manager must sign up and logged in to the system	
Dependencies:	
<p>Test steps: Login to the system by entering correct user login credentials</p> <ul style="list-style-type: none"> • Click the "Service Catalog" button on the nav bar • Fill all required fields with correct details • Click on the “Update” button 	

Table 4.1.7.5 Test case results for Update Service Catalog - by the Financial Manager

Test Case ID: 0006	Test Designed By: Thathsara S. M. K.
Test Title: Testing delete item/services from the catalog	Test Designed Date: 2023.05.08
Test Priority: High	Test Executed By: Thathsara S. M. K.
Module Name: Cancel previously entered items/services by financial manager (Cancel and Deleting)	Test Executed Date: 2023.05.09
Description: delete the selected item/service from the whole database	
Pre-condition: Financial manager must sign up and logged in to the system	
Dependencies:	
<p>Test steps: Login to the system by entering correct user login credentials</p> <ul style="list-style-type: none"> • Click the "Service Catalog" button on the nav bar • Fill all required fields with correct details • Click on the “Delete” button 	

Table 4.1.7.6 Test case results for Cancel (Delete) item/service - by the Financial Manager

4.1.8.Compliance Handling & Feedback Management

Test Case ID: 0007	Test Designed By: Munasinghe V N
Test Title: Compliance Handling and Feedback Management – Create Feedback	Test Designed Date: 2023.05.11
Test Priority: High	Test Executed By: Munasinghe V N
Module Name: Create	Test Executed Date: 2023.05.15
Description: This will test if the feedback creates function is working properly by saving details in the database and viewing feedback responses on the admin view page.	
Pre-condition: When creating feedback Patient must be logged in	
Dependencies: Depends on user logging	
Test steps: <ul style="list-style-type: none">• Log in as a patient and go to the feedback creating.• Enter feedback details on the feedback form.• Click on the submit button.• “Successfully Submitted” alert message is displayed.• System redirects to the feedback page.	

Table 4.1.8.1 Test case for Contact Us

Test Case ID: 0008	Test Designed By: Munasinghe V N
Test Title: Compliance Handling and Feedback Management – Contact Us	Test Designed Date: 2023.05.11
Test Priority: High	Test Executed By: Munasinghe V N
Module Name: Create	Test Executed Date: 2023.05.15
Description: This will test if the contact us function is working properly by saving details in the database and viewing responses on the admin view page.	
Pre-condition:	
Dependencies:	
Test steps: <ul style="list-style-type: none"> • Enter contact us details on the contact us form. • Click on the submit button. • “Successfully Submitted” alert message is displayed. • System redirects to the home page. 	

Table 4.1.8.2 Test case for Contact Us

5. Evaluation & Conclusion

5.1. Evaluation

5.1.1. ASSESSMENT OF THE PROJECT

After finishing the project, we have made the E-channeling management system change to old manual approach to computer-based approach. By finishing the project, it satisfies our client's requirements. After handing the project over to the client, we were able to get excellent feedback for the project by satisfying the project requirements.

5.1.2. LESSONS LEARNED

On a more practical level, we must communicate with clients and offer the best solutions to meet their needs. This endeavor was crucial in helping us grasp the fundamental notions of working life. We learned how to work as a team to accomplish a common goal within a set time frame, as well as how to overcome the challenges we had in this sit. It was a fantastic opportunity for us to gather experience as IT, undergraduates, before moving into the industrial world.

5.1.3. FUTURE WORK

Throughout the period of doing the project, our team members show excellent support. The teamwork created a pleasant environment in which to work on our project. We understood the advantages and disadvantages both can get as individuals and as a collective. Our project will soon be hosted as a fully functional web application. We will all put in a lot of effort to create different kinds of system functionalities. We want to turn our idea into a prototype that can be used to create a system that can deal with problems like this one in the real world by adding new features and user-friendly displays. We will also make use of technology to increase our client's business potential.

5.2. Conclusion

In conclusion, the Laboratory and E-Channeling Management System project has successfully addressed the challenges and inefficiencies in traditional laboratory and appointment booking processes. Through the implementation of a comprehensive and user-friendly system, it has significantly improved the overall efficiency, accuracy, and convenience of laboratory services and appointment scheduling.

The project has successfully streamlined the laboratory workflow by digitizing and automating various tasks, such as sample tracking, appointment management, and inventory control. This has not only reduced human errors and data inconsistencies but also accelerated the turnaround time for test results, leading to better patient care and satisfaction.

Moreover, the integration of an E-Channeling feature has revolutionized the appointment booking process by enabling patients to schedule their laboratory visits online, thereby eliminating the need for time-consuming phone calls or physical visits to the hospital. This has not only improved accessibility for patients but also optimized the utilization of laboratory resources, ensuring a smooth and efficient flow of patients.

The Laboratory and e-Channeling Management System project has also enhanced data management and security through the implementation of robust data encryption protocols and access controls. This ensures the confidentiality and integrity of sensitive patient information, complying with privacy regulations and maintaining trust between healthcare providers and patients.

Overall, the successful implementation of the Laboratory and e-Channeling Management System has brought about numerous benefits, including increased operational efficiency, improved patient experience, enhanced data security, and optimized resource allocation. It serves as a testament to the power of technology in revolutionizing healthcare services and demonstrates the commitment of healthcare organizations to continuously improve and adapt to the evolving needs of patients and the industry.

6. References

[1]

S. Sandeepa, "Patient Management System for a Channeling Center - MediCu," papers.ssrn.com/paper=4105816 (accessed Mar. 01, 2023).

[2]

"Work Breakdown Structure (WBS): An Overview, Uses, Software," Coursera.
<https://www.coursera.org/articles/work-breakdown-structure>

[3]

"Welcome to SDLC | SDLC," sdlc.uconn.edu, Aug. 02, 2013.
<https://sdlc.uconn.edu/>

[4]

"Channel System - Explained," The Business Professor, LLC.
https://thebusinessprofessor.com/en_US/principles-of-marketing/what-is-a-channel-system

[5] The International Journal of Medical Informatics. Ireland: Elsevier Ireland Ltd, 2019

[6] Journal of Medical Internet Research. JMIR Publications, 2019

https://www.jmir.org/?utm_term=medical%20journal%20articles&utm_campaign=2021%20JMIR%20Publications%20Search&utm_source=adwords&utm_medium=ppc&hsa_acc=2813456370&hsa_cam=15563024339&hsa_grp=131971757918&hsa_ad=569482072265&hsa_src=g&hsa_tgt=kwd96672430&hsa_kw=medical%20journal%20articles&hsa_mt=b&hsa_net=adword&hsa_ver=3&gclid=CjwKCAiAxvGfBhBEiwAMPakqjYw4uq2noindYpCeCOD8f2FszEhO4wWJXXAzVdlbXbPZ8Idm64QDBoCwbQQAvD_BwE

[7] Journal of Medical Systems. New York: Springer New York, 2020

[8] Journal of the American Medical Association. Simon & Schuster, 2019

[9] Journal of Medical Systems. New York: Springer New York, 2020